

Rules made under s. 110 and 337.

**PUBLIC HEALTH (POTABLE WATER) RULES, 1994****(LN. 1994/126)****17.11.1994**

Amending enactments	Relevant current provisions	Commencement date
LN. 1994/128	–	
2001/061	rr. 3, 4(1) (2) (3) and (4)(b)(a)(c), 5 (1) and (4), 8 (1)(b) (2), (3) and (4), 11A, 11B and 11C Sch. 1, 2 and 3	7.6.2001
2007/075	rr. 1A, 4(4)(c), (4A), (4B), (4C), (4D), 7(1), 11A(2)(b)(i), 11A(4) & (5), 11C(2),13 & Sch.3	3.5.2007
2010/052	r. 7A	25.3.2010
2015/203	rr. 1A(1), 4A, 5(1), (1A), (2), (3), 4), (5), 8(6), 9(1), (1)(a), 11A(4), (5), Schs. 1, 4, 5, 6,	28.11.2015
2017/193	Sch. 2 & 3	27.10.2017

**EU Legislation/International Agreements involved:**

Directive 98/83/EC

Directive 2013/51/Euratom

Directive (EU) 2015/1787

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MONITORING FOR INDICATIVE DOSE AND ANALYTICAL  
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**Title.**

1. These Rules may be cited as the Public Health (Potable Water) Rules, 1994.

**Interpretation.**

1A.(1) In these Rules—

“the Directive” means Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption;

“Directive 2013/51/Euratom” means Council Directive 2013/51/Euratom of 22 October 2013 laying down requirements for the protection of the health of the general public with regard to radioactive substances in water intended for human consumption;

“indicative dose”, for the purposes of Schedules 4 to 6, means the committed effective dose for one year of ingestion resulting from all radionuclides whose presence has been detected in a supply of potable water, of natural and artificial origin, but excluding tritium, potassium-40, radon and short-lived radon decay products;

“parametric value”, for the purposes of Schedules 4 to 6, means the value of radioactive substances in potable water above which the competent national authority shall assess whether the presence of radioactive substances in potable water poses a risk to human health which requires action and, where necessary, shall take remedial action to improve the quality of water to a level which complies with the requirements for the protection of human health from a radiation point of view;

“radioactive substance” means any substance that contains one or more radionuclides the activity or concentration of which cannot be disregarded as far as radiation protection is concerned.

(2) In these Rules, unless the context otherwise requires, any term used but not defined shall be construed in accordance with the provisions of the Directive.

**Mineral and medicinal waters.**

2.(1) Where potable water has been deemed as natural mineral water by the competent authority of another member State or of the United Kingdom the competent national authority shall recognise that water as natural mineral water.

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(2) The competent national authority shall consider and determine an application made under these Rules to define water as natural mineral water.

(3) The competent national authority shall consider and determine an application made under these Rules to recognise water as medicinal water.

(4) Water supplied, howsoever supplied, and intended for human consumption which is not recognised or defined as natural mineral water or medicinal water under this rule is potable water within the meaning given to that expression in section 99(2) and these Rules shall apply to it.

**Industrial sectors unaffected by the quality of water.**

3.(1) Where, having considered an application made in accordance with these Rules by a person using or intending to use water in a food production undertaking, the competent national authority is of the opinion that the wholesomeness of the finished product is unaffected by the quality of the water used the authority shall specify that activity as an industrial sector falling within Article 3(2)(a) of the Directive and the provisions of section 110 shall not apply in respect of water used for that food production to the extent specified by the authority in a determination made under this rule.

(2) Where there has been a determination made under this rule specifying an activity as an industrial sector falling within Article 3(2)(a) of the Directive, a supplier may supply water to an undertaking in accordance with that determination and without regard to these Rules save to the extent that the determination applies these Rules or any part of them and water used in that undertaking for the purpose specified in the determination shall not fall within the definition of potable water.

**National values in respect of potable water.**

4. (1) Schedules 1 to 3 shall have effect.

(2) *Revoked.*

(3) Where water falls within section 99(2)(b) a person intending to use that water in a food production undertaking may apply in accordance with these Rules to the competent national authority to have determined the parameters in respect of that undertaking and the authority may fix values, other than the values for the toxic and micro biological parameters listed in Schedule 1 to these rules, for parameters which in its opinion are likely to affect the wholesomeness of the foodstuff in its finished form and such parameters may vary from those otherwise specified in the Schedule.

(4) The competent national authority may by the issuing of instructions—

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- (a) vary the contents of Schedule 1, where in its view it is appropriate so to do to prevent a hazard to public health, provided that such variation does not derogate from the requirements of the Directive other than in a manner and to a degree permitted by the Directive;
- (b) specify values in respect of parameters where no value is shown for that parameter in Schedule 1 to these rules, where in the opinion of the authority it is appropriate so to do for the purpose of preventing a hazard to public health;
- (c) permit a supplier of potable water to supply water at a standard other than that specified in Schedule 1 or in instructions issued under this subrule where such derogation is permitted by the Directive and where in the opinion of the authority the circumstances warrant the derogation and there will not thereby be an unacceptable risk to public health,

and any derogation granted under this subrule shall be for the shortest period of time possible and in any event shall not exceed 3 years.

(4A) Where the competent national authority issues instructions in accordance with subrule (4) for non-compliance with the parametric values set out in Schedule 1, if—

- (a) the competent national authority considers the non-compliance to be trivial; and
- (b) the non-compliance is remedied within 30 days,

the instructions need not apply the requirements set out in Article 9(3) of the Directive but must set out the maximum permissible value for the parameter concerned and state the time allowed for the non-compliance to be remedied.

(4B) Subrule (4A) shall not apply where the failure to comply with any one parametric value for a given water supply has occurred on more than 30 days on aggregate during the previous 12 months.

(4C) Where a supplier of potable water is granted a derogation pursuant to subrule (4) he must promptly inform the public that a derogation has been granted and the information made public must include the conditions attached to the derogation.

(4D) The competent national authority shall, where necessary, ensure that advice is given to particular population groups for which the derogation could present a risk to their health.

(5) Where a supplier of potable water is or, by reason of the meteorological conditions or other emergency conditions affecting the supply of potable water or water from which potable water is to be prepared, should be aware that it is likely that the quality of potable water will not comply with the standards, qualities or values required by the Directive, the Act or these Rules or otherwise may be a hazard to public health he shall make application to the competent national authority requesting that the authority permit a derogation.

(6) An application made under subrule (5) shall be in the manner prescribed by the competent national authority for this purpose and shall be accompanied by any and all information available to the supplier which may be relevant to the authority in considering the application.

(7) The competent national authority shall consider any application made under subrule (5) as expeditiously as may be and shall similarly decide whether or not to permit the derogation and shall convey the terms of any such derogation to the applicant and to any other person who, in the opinion of the authority it is appropriate to inform in the interests of preventing a risk to public health.

(8) Where because of the unforeseen nature of the conditions as a result of which a supplier of potable water is unable–

- (a) to maintain the supply of the potable water in accordance with the standards, qualities or values required by the Directive, the Act or these Rules, and
- (b) to make an application under subrule (5) in advance of being unable to so maintain the supply,

the supplier shall–

- (c) inform the competent national authority as soon as he is aware that he is; or may be, unable to maintain the supply, and
- (d) inform the authority of the extent, nature and likely duration of the failure in supply, and
- (e) provide to the authority any and all information available to the supplier which may be relevant to the authority in determining whether or not to permit a derogation and the duration and terms of any such derogation.

(9) A failure by a supplier to comply with the requirements of this rule without reasonable excuse shall be a summary offence punishable on conviction by a fine at level 4 on the standard scale.

(10) It shall be a reasonable excuse for the purposes of subrule (9) if the supplier satisfies the court that he took all such steps to comply with the requirements of the rule as would be taken by a competent supplier in the circumstances.

**National values with regard to radioactive substances in potable water.**

4A. Schedules 4 to 6 shall have effect with regard to radioactive substances in potable water in accordance with Directive 2013/51/Euratom.

**Analysis.**

5. (1) The competent national authority shall by instructions issued by it to any supplier of potable water require that supplier to conduct such analysis as the authority shall specify in respect of that water at such points of sampling as specified in subrule (1A) and at such frequency and of such scope as the authority shall have determined in accordance with Schedule 2, or for the purposes of Directive 2013/51/Euratom, Schedule 5, to these rules.

(1A) The points of sampling referred to in subrule (1) shall be –

- (a) in the case of water supplied from a distribution network, the point at which it emerges from the taps where the water is normally taken or at any point within the supply zone or at the treatment works provided there is no adverse change in the concentration value between those points;
- (b) in the case of water supplied from a tanker, the point at which it emerges from the tanker;
- (c) in the case of water put into bottles or containers intended for sale, the point at which the water is put into the bottles or containers;
- (d) in the case of water used in a food-production undertaking, the point where the water is used in the undertaking.

(2) The results of analysis conducted in accordance with subrule (1) shall be reported to the competent national authority in the form and with the frequency reasonably required for the purposes of the Directive and Directive 2013/51/Euratom by instructions issued by the authority.

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(3) The competent national authority shall carry out, or cause to be carried out by competent persons appointed by it for the purpose and who are independent of the supplier, such analysis on samples of water taken as required by the Directive and Directive 2013/51/Euratom as is necessary to ensure compliance with those directives, including the preparation of any reports required thereunder.

(4) The methods of analysis to be used for the purposes of this rule shall be so far as is practicable those set out in Schedule 3, or for the purposes of Directive 2013/51/Euratom, Schedule 6 to these rules and where a person responsible for carrying out an analysis uses a method other than the relevant method specified in the corresponding Schedule the method used shall be one giving equivalent or comparable results.

(5) It shall be a summary offence punishable on conviction by a fine at level 4 on the standard scale to supply to the competent national authority information required under subrule (2) knowing it to have been obtained other than in accordance with the Directive or Directive 2013/51/Euratom as applied by the Act and these Rules or being reckless as to whether or not it has been so obtained.

**Maintenance by a supplier of a wholesome supply.**

6. (1) A supplier of potable water shall take all such steps as are necessary to maintain that supply to a standard that satisfies the requirements of the Directive, the Act and these Rules.

(2) Where potable water does not comply with the requirements of the Directive as applied by the Act and these Rules and no derogation has been permitted by the competent national authority or potable water constitutes a hazard to public health, no person shall supply, or cause the water to be supplied, to a user and a supplier shall take all such steps as are necessary to prevent such supply until such time as he and the competent authority are satisfied that the water meets those requirements, or those requirements as varied by a derogation, as the case may be, or does not constitute a hazard to public health.

(3) A person who supplies water, or causes water to be supplied, as potable water in contravention of this rule shall be guilty of summary offence punishable on conviction by a fine at five times the amount at level 5 on the standard scale and by a further daily fine of an amount at level 5 on that scale in respect of each day or part of the day on which he supplied water as potable water in contravention of this rule and on which the court is satisfied that he knew or could reasonably be expected to have known that he was in contravention of this rule.

**Maintenance by competent authority of wholesome supply.**



7.(1) Where the competent national authority believes, for whatever reason, that potable water to which these Rules apply and which does not conform with the requirements of the Directive, the Act or these Rules in respect of standards, qualities or values or which is a risk to public health is being supplied it may take such action as it considers necessary to obtain information, take samples, monitor, issue to the supplier instructions in respect of remedial action to be taken by him, instruct him to interrupt the supply or itself or through its agents interrupt the supply or do such other thing as it considers necessary in the interests of public health including providing information to the users or potential users of the potable water:

Provided that where the supply is to be interrupted or restricted prior consideration must be given to the risks to human health that such an interruption may cause.

(2) Where a supplier of potable water supplies or permits the supply of potable water in contravention of any instructions issued to him by the competent national authority under subrule (1) that supplier of potable water shall be guilty of a summary offence punishable on conviction by a fine at ten times the amount at level 5 on the standard scale and by imprisonment for a period not exceeding 3 months, and to a daily fine of an amount at level 5 on that scale in respect of each day or part of a day on which the contravention occurs.

#### **Disinfection of potable water.**

7A.(1) A supplier of potable water who uses disinfection products in the preparation or distribution of that water shall—

- (a) verify the efficiency of the disinfection treatment; and
- (b) ensure that any contamination from by-products is kept to a minimum without compromising the disinfection.

(2) Where the competent national authority is not satisfied that subrule (1) has been complied with to its satisfaction, it may issue an instruction specifying the matters which the supplier of potable water must comply with.

(3) A person who fails to comply with an instruction addressed to him in accordance with subrule (2) is guilty of an offence and is liable on summary conviction to a fine not exceeding level 4 on the standard scale.

#### **Reports and Notifications.**

8.(1) The competent national authority shall send to the Commission—

- (a) appropriate information in respect of any industrial sector in which the authority considers that the wholesomeness of the finished product is unaffected by the quality of the water used;
- (b) the national values for parameters (other than the values of the toxic and micro biological parameters listed in Schedule 1 to these rules).

(2) The competent national authority may permit an exemption from any requirement of these rules on the ground that the water is intended for human consumption from any individual supply providing on average less than 10 cubic metres of water per day or serving fewer than 50 persons.

(3) Sub-rule (2) shall not apply where the water concerned is supplied as part of a commercial activity or as a general public service.

(4) Where the competent national authority decides to permit a exemption to which section 110(3) applies it shall immediately inform the Commission of the exemption, the reasons for it and probable duration of the exemption.

(5) Where by rules made under the Act or by instruction issued by the competent national authority special measures regarding—

- (a) the provision of information in respect of a water's suitability, and
- (b) the properties of that water which determine the use of that information,

for the feeding of infants are to be introduced the authority shall in advance inform the Commission and the competent national authorities of other member States and of the United Kingdom.

(6) The competent national authority shall keep such records as in its opinion are necessary to give effect to the requirements of the Directive and Directive 2013/51/Euratom as applied by the Act and these Rules and shall keep those records in such form as it shall determine appropriate.

**Powers of the competent national authority.**

9. (1) For the purpose of carrying out its duties under the Directive and Directive 2013/51/Euratom as applied by the Act and these Rules, the competent national authority or any person appointed by it for the purposes of these Rules, may—

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- (a) require a supplier of potable water to keep such records as in the opinion of the authority are appropriate for the purpose of showing compliance with the Directive and Directive 2013/51/Euratom as applied by the Act and these Rules;
- (b) enter premises and waterworks, with or without notice;
- (c) inspect premises and waterworks;
- (d) sample water, both before and after treatment., and substances used in the preparation of potable water;
- (e) inspect, copy or take away books, records or other materials, in whatever form, relevant to ascertaining the standards, qualities or values of potable water;
- (f) take such measures as it may reasonably determine to interrupt the supply of potable water or cause any waterworks to cease to operate until it is satisfied that any conditions required by it to be met have been met or until it is satisfied that the supply or the waterworks are not a hazard to public health;
- (g) appoint such specialists, consultants and technical and administrative assistance as the authority may require to carry out its functions;
- (h) prepare and distribute as required by the Directive reports and notifications;
- (j) consider and determine applications made under these Rules including where appropriate the granting of licences and the giving of permissions and derogations subject to such conditions as In the opinion of the authority are necessary to give effect to the Directive and prevent a hazard to public health;
- (k) charge and recover such fees and charges as are provided for in the Act and these Rules;
- (l) prescribe form, procedures and timetables which in the opinion of the authority are appropriate to give effect to the Directive as applied by the Act and these Rules;
- (m) take such actions and issue such instructions as in the opinion of the authority are necessary generally to prevent a risk to public health.

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(2) Where as a result of the actions of the competent national authority under these Rules a supplier or any other person suffers loss, direct or indirect and including damage to reputation, no claim of any kind shall lie against the authority unless it be shown that the authority was not motivated in its actions by a concern for public health.

**Requirement to be licensed.**

10. (1) No person, other than a person permitted by the Government at the effective date of these rules to supply potable water, may supply potable water in or from Gibraltar except under and in accordance with the conditions of a licence issued by the competent national authority under these Rules.

(2) The competent national authority shall not be required to issue or renew or reissue a licence to permit a person to supply potable water in or from within Gibraltar unless it is satisfied that—

- (a) the person has the resources, competence and experience to do so in compliance with the Directive as applied by the Act and these Rules and without risk to public health; and
- (b) the requirements of these Rules have been and, in the opinion of the authority, are likely to continue to be met by the person; and
- (c) the requirements of the law in Gibraltar relating to the operation of a business are being and have been met by the person in respect of this business and any other business in which that person has an interest or which has an interest in that person or of which that person is a manager, officer or member,

and for the purpose of satisfying itself of those matters the authority may require an applicant for a licence or for the renewal or reissue of a licence to produce such information in such form as it may specify, evidenced as it may require, and in the absence of that information the authority shall not be required to consider the application.

(3) The competent national authority shall issue instructions prescribing the forms, procedures and timetables to be observed in respect of an application for a licence, the consideration of such an application and the granting or refusal of the application.

**Fees and charges.**

11. (1) Where the competent national authority incurs costs in carrying out its functions under these Rules it may charge a fee to the supplier or the applicant, as the case may be, such fee to be determined in accordance with the provisions of this rule.

(2) The fee referred to in subrule (1) shall not exceed the sum of the costs reasonably incurred, by the competent national authority in carrying out its functions as they affect that supplier or that applicant and, where the costs are incurred in respect of more than one supplier or applicant, the fee charged to each supplier or applicant shall be the total cost divided by the number of suppliers or applicants in respect of whom the costs have been incurred.

(3) Where, in the opinion of the competent national authority, it can properly carry out its functions only by engaging consultants or persons who have specialist or technical expertise the cost of such persons shall be included in the fee payable under this rule.

(4) The competent national authority may determine the cost of employing an officer, including a public officer, for any period on work appropriate to his grade by reference to the average cost of employing officers of his grade period.

(5) The competent authority shall at the time it—

- (a) advises a supplier of the monitoring it proposes to carry out in respect of water supplied by that supplier; or
- (b) receives an application,

make an estimate of the fee to be paid by the supplier or the applicant, as the case may be, and that person shall pay the estimated amount or, in the case of a supplier, the estimated amount in the instalments and to the timetable reasonably required by the authority.

(6) In the absence of the payment referred to in subrule (5) the competent national authority shall not be required to consider an application.

(7) When the competent national authority has completed the work in respect of which a fee provided for in subrule (5) was paid it shall prepare and give to the person liable to pay under that subrule a detailed statement of the work done and the costs incurred and—

- (a) where the amount so calculated exceeds the amount paid under subrule (5), that person shall pay the additional amount, and where the work was in respect of an application the authority

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shall not be required to grant the application until such amount has been paid; or

- (b) where the amount so calculated is less than the amount paid under subrule (5), the authority shall refund to that person the amount of the excess.

(8) Except where subrule (5) applies, when requiring, payment, the competent national authority shall send or give to the person to be charged a detailed statement of the work done and costs incurred, and where a fee remains due for a period in excess of one month, the authority—

- (a) may recover the fee under the provision of the Act as a civil debt;
- (b) shall not be required to consider any new application made by the person owing the fee;
- (c) may revoke an existing permission determination, licence or derogation.

(9) Where as a result of any failure by a supplier to comply with the requirements of these Rules the competent national authority incurs costs of whatever kind, those costs, calculated in accordance with this rule, shall be paid to the authority by the supplier within one month of being demanded and in the event that they are not the authority may recover the amount of the costs from the supplier as a civil debt and while such costs remain unpaid the authority shall not be required to consider or determine any application of whatever kind under these Rules by that supplier, or, where the supplier is a company or other corporate entity, by any person who is or was beneficially interested in that entity or in which that entity is or was beneficially interested or who is or was a manager officer or member of such an entity.

**Investigations.**

11A.(1) Subject to sub-rule (3), where a supplier of potable water has reason to believe that water supplied by it fails to comply with the provisions of these rules he shall immediately take such steps as are necessary to identify the matters specified in sub-rule (2) below.

- (2) The matters referred to in sub-rule (1) are—
- (a) the causes, extent and nature of the failure or, as the case may be, the apprehended failure;
- (b) whether the failure, or apprehended failure is attributable—

- (i) to the domestic distribution system;
- (ii) to the maintenance of that system; or
- (iii) to neither of those matters.

(3) As soon as may be after the matters specified in sub-rule (2) have been identified, the supplier of potable water shall notify the competent national authority—

- (a) of those matters;
- (b) whether it is the opinion of the supplier of potable water that a similar failure is likely to recur; and
- (c) of the remedial action (if any) taken by the supplier of potable water in relation to the failure.

(4) Where the supplier of potable water has taken remedial action with regard to the failure to meet a parametric value set out in Part A, Part B, or both, of Schedule 1, or a parametric value set out in Schedule 4, at the same time as it notifies the competent national authority pursuant to subrule (3) the supplier of potable water must notify consumers—

- (a) of the nature of the failure and provide details of the steps (if any) that, in the opinion of the supplier of potable water, it is necessary or desirable for those consumers to take in the interests of their health; and
- (b) send a copy of that notice to the competent national authority.

(5) Subrule (4) shall not apply where the competent national authority considers the non-compliance with the parametric values in Schedule 1 to be trivial.

**Action by the competent national authority.**

11B.(1) Where following a notification given to the competent national authority in accordance with rule 11A it appears to the authority that the failure is not trivial and is likely to recur, the authority may take such remedial action as, in the opinion of the authority may be reasonably required in the circumstances.

(2) It shall be the duty of a supplier of potable water to comply with any instructions issued to it by the authority in accordance with sub-rule (1).

**Provision of information.**

11C.(1) A supplier of potable water shall make available for inspection by the public at all reasonable hours and free of charge the record maintained by it in respect of matters falling within these rules.

(2) Where a supplier has benefited from an exemption under these rules, he shall inform the population concerned of the fact and make available for inspection by the public at all reasonable hours and free of charge a report setting out the consequences of the exemption for human health as well as any remedial measures the population concerned may take in order to protect themselves.

(3) A supplier of potable water shall afford to any person facilities to take or obtain a copy of any part of a record maintained pursuant to sub-rule (1) or (2) on payment of such reasonable charge as the supplier may determine.

(4) A supplier of potable water shall include in or append to at least one of the accounts sent to each customer in any year a statement informing them—

- (a) that records of water quality may be inspected by the public free of charge; and
- (b) of the address, telephone numbers and hours of opening of the offices at which an inspection can be made.

#### **Offences by corporate entities.**

12. (1) Where an offence under these Rules which has been committed by a corporate entity is shown to have been committed with the consent or connivance or to be attributable to any neglect on the part of a director, manager, secretary or other similar officer of the entity or any person who is purporting to act in such a capacity, he, as well as the entity, shall be guilty of that offence and liable to be proceeded against accordingly'.

(2) Where the affairs of a corporate entity are managed by its members, subrule (1) shall apply in relation to the acts and defaults of a member in connection with his functions of management as if he were a director of the entity.

#### **Dissemination of information on water quality.**

13. The competent national authority shall ensure that adequate and up-to-date information relating to the quality of water intended for human consumption is made available to the public, and the publication of such



information by electronic means shall be sufficient for the purposes of this rule.

## PARAMETERS AND PARAMETRIC VALUES

## PART A

## Microbiological parameters

Parameter	Parametric value (number/100 ml)
<i>Escherichia coli</i> ( <i>E. coli</i> )	0
Enterococci	0

The following applies to water offered for sale in bottles or containers:

Parameter	Parametric value
<i>Escherichia coli</i> ( <i>E. coli</i> )	0/250 ml
Enterococci	0/250 ml
<i>Pseudomonas aeruginosa</i>	0/250 ml
Colony count 22 °C	100/ml
Colony count 37 °C	20/ml

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Chemical parameters

Parameter	Parametric value	Unit	Notes
Acrylamide	0,10	$\mu\text{g/l}$	Note 1
Antimony	5,0	$\mu\text{g/l}$	
Arsenic	10	$\mu\text{g/l}$	
Benzene	1,0	$\mu\text{g/l}$	
Benzo(a)pyrene	0,010	$\mu\text{g/l}$	
Boron	1,0	$\text{mg/l}$	
Bromate	10	$\mu\text{g/l}$	Note 2
Cadmium	5,0	$\mu\text{g/l}$	
Chromium	50	$\mu\text{g/l}$	
Copper	2,0	$\text{mg/l}$	Note 3
Cyanide	50	$\mu\text{g/l}$	
1,2-dichloroethane	3,0	$\mu\text{g/l}$	
Epichlorohydrin	0,10	$\mu\text{g/l}$	Note 1
Fluoride	1,5	$\text{mg/l}$	
Lead	10	$\mu\text{g/l}$	Notes 3 and 4
Mercury	1,0	$\mu\text{g/l}$	
Nickel	20	$\mu\text{g/l}$	Note 3
Nitrate	50	$\text{mg/l}$	Note 5
Nitrite	0,50	$\text{mg/l}$	Note 5
Pesticides	0,10	$\mu\text{g/l}$	Notes 6 and 7
Pesticides — Total	0,50	$\mu\text{g/l}$	Notes 6 and 8
Polycyclic aromatic hydrocarbons	0,10	$\mu\text{g/l}$	Sum of concentrations of specified compounds; Note 9
Selenium	10	$\mu\text{g/l}$	
Tetrachloroethene and Trichloroethene	10	$\mu\text{g/l}$	Sum of concentrations of specified parameters
Trihalomethanes — Total	100	$\mu\text{g/l}$	Sum of concentrations of specified compounds; Note 10
Vinyl chloride	0,50	$\mu\text{g/l}$	Note 1

- Note 1:** The parametric value refers to the residual monomer concentration in the water as calculated according to specifications of the maximum release from the corresponding polymer in contact with the water.
- Note 2:** Where possible, without compromising disinfection, Member States should strive for a lower value.
- For the water referred to in Article 6(1)(a), (b) and (d), the value must be met, at the latest, 10 calendar years after the entry into force of the Directive. The parametric value for bromate from five years after the entry into force of this Directive until 10 years after its entry into force is 25 µg/l.
- Note 3:** The value applies to a sample of water intended for human consumption obtained by an adequate sampling method<sup>(1)</sup> at the tap and taken so as to be representative of a weekly average value ingested by consumers. Where appropriate the sampling and monitoring methods must be applied in a harmonised fashion to be drawn up in accordance with Article 7(4). Member States must take account of the occurrence of peak levels that may cause adverse effects on human health.
- Note 4:** For water referred to in Article 6(1)(a), (b) and (d), the value must be met, at the latest, 15 calendar years after the entry into force of this Directive. The parametric value for lead from five years after the entry into force of this Directive until 15 years after its entry into force is 25 µg/l.
- Member States must ensure that all appropriate measures are taken to reduce the concentration of lead in water intended for human consumption as much as possible during the period needed to achieve compliance with the parametric value.
- When implementing the measures to achieve compliance with that value Member States must progressively give priority where lead concentrations in water intended for human consumption are highest.
- Note 5:** Member States must ensure that the condition that  $[\text{nitrate}]/50 + [\text{nitrite}]/3 \leq 1$ , the square brackets signifying the concentrations in mg/l for nitrate (NO<sub>3</sub>) and nitrite (NO<sub>2</sub>), is complied with and that the value of 0,10 mg/l for nitrites is complied with ex water treatment works.
- Note 6:** 'Pesticides' means:
- organic insecticides,
  - organic herbicides,
  - organic fungicides,
  - organic nematocides,
  - organic acaricides,
  - organic algicides,
  - organic rodenticides
  - organic slimicides,
  - related products (*inter alia*, growth regulators)
- and their relevant metabolites, degradation and reaction products.
- Only those pesticides which are likely to be present in a given supply need be monitored.
- Note 7:** The parametric value applies to each individual pesticide. In the case of aldrin, dieldrin, heptachlor and heptachlor epoxide the parametric value is 0,030 µg/l.
- Note 8:** 'Pesticides — Total' means the sum of all individual pesticides detected and quantified in the monitoring procedure.
- Note 9:** The specified compounds are:
- benzo(b)fluoranthene,
  - benzo(k)fluoranthene,
  - benzo(ghi)perylene,
  - indeno(1,2,3-cd)pyrene.
- Note 10:** Where possible, without compromising disinfection, Member States should strive for a lower value.
- The specified compounds are: chloroform, bromoform, dibromochloromethane, bromodichloromethane.
- For the water referred to in Article 6(1)(a), (b) and (d), the value must be met, at the latest, 10 calendar years after the entry into force of this Directive. The parametric value for total THMs from five years after the entry into force of this Directive until 10 years after its entry into force is 150 µg/l.

<sup>(1)</sup> To be added following the outcome of the study currently being carried out.

2 500	$\mu\text{S cm}^{-1}$ at 20 °C
$\geq 6,5$ and $\leq 9,5$	pH units

SCHEDULE 2

MONITORING

PART A

**General objectives and monitoring programmes for water intended for human consumption**

1. Monitoring programmes for water intended for human consumption must:

- (a) verify that the measures in place to control risks to human health throughout the water supply chain from the catchment area through abstraction, treatment and storage to distribution are working effectively and that water at the point of compliance is wholesome and clean;
- (b) provide information on the quality of the water supplied for human consumption to demonstrate that the obligations set out in Articles 4 and 5, and the parametric values laid down in Annex I, are being met;
- (c) identify the most appropriate means of mitigating the risk to human health.

2. Pursuant to Article 7(2), competent authorities shall establish monitoring programmes complying with the parameters and frequencies set out in Part B of this Annex which consist of:

- (a) collection and analysis of discrete water samples; or
- (b) measurements recorded by a continuous monitoring process.

In addition, monitoring programmes may consist of:

- (a) inspections of records of the functionality and maintenance status of equipment; and/or
- (b) inspections of the catchment area, water abstraction, treatment, storage and distribution infrastructure.

3. Monitoring programmes may be based on a risk assessment as set out in Part C.

4. Member States shall ensure that monitoring programmes are reviewed on a continuous basis and updated or reconfirmed at least every 5 years.

## PART B

### Parameters and frequencies

#### 1. General framework

A monitoring programme must take into account the parameters referred to in Article 5, including those that are important for assessing the impact of domestic distribution systems on the quality of water at the point of compliance, as set out in Article 6(1). When choosing appropriate parameters for monitoring, local conditions for each water supply system must be taken into consideration.

Member States shall ensure that the parameters listed in point 2 are monitored at the relevant sampling frequencies as set out in point 3.

#### 2. List of parameters

##### *Group A parameters*

The following parameters (Group A) shall be monitored in accordance with the monitoring frequencies set out in Table 1 of point 3:

- (a) *Escherichia coli* (*E. coli*), coliform bacteria, colony count 22°C, colour, turbidity, taste, odour, pH, conductivity;
- (b) other parameters identified as relevant in the monitoring programme, in accordance with Article 5(3) and, where relevant, through a risk assessment as set out in Part C.

Under specific circumstances, the following parameters shall be added to the Group A Parameters:

- (a) ammonium and nitrite, if chloramination is used;
- (b) aluminium and iron, if used as water treatment chemicals.

##### *Group B parameters*

In order to determine compliance with all parametric values set out in this Directive, all other parameters not analysed under Group A and set in accordance with Article 5 shall be monitored at least at the frequencies set out in Table 1 of point 3.

## 3. Sampling frequencies

Table 1

**Minimum frequency of sampling and analysis for compliance monitoring**

Volume of water distributed or produced each day within a supply zone (See Notes 1 and 2) m <sup>3</sup>		Group A parameter number of samples per year (see Note 3)	Group B parameter number of samples per year
	100	> 0	> 0 (See Note 4)
> 100	1 000	4	1
> 1 000	10 000	4 +3 <b>for each 1 000 m<sup>3</sup>/d and part thereof of the total volume</b>	1 + 1 for each 4 500 m <sup>3</sup> /d and part thereof of the total volume
> 10 000	100 000		3 + 1 for each 10 000 m <sup>3</sup> /d and part thereof of the total volume
> 100 000			12 + 1 for each 25 000 m <sup>3</sup> /d and part thereof of the total volume

*Note 1:* A supply zone is a geographically defined area within which water intended for human consumption comes from one or more sources and water quality may be considered as being approximately uniform.

*Note 2:* The volumes are calculated as averages taken over a calendar year. The number of inhabitants in a supply zone may be used instead of the volume of water to determine the minimum frequency, assuming water consumption of 200 l/(day\*capita).

*Note 3:* The frequency indicated is calculated as follows: e.g. 4300 m<sup>3</sup>/d = 16 samples (four for the first 1 000 m<sup>3</sup>/d + 12 for additional 3 300 m<sup>3</sup>/d).

*Note 4:* Member States that have decided to exempt individual supplies under Article 3(2)(b) of this Directive shall apply these frequencies only for supply zones that distribute between 10 and 100 m<sup>3</sup> per day.

## PART C



**Risk assessment**

1. Member States may provide for the possibility to derogate from the parameters and sampling frequencies in Part B, provided that a risk assessment is performed in accordance with this Part.
2. The risk assessment referred to in point 1 shall be based on the general principles of risk assessment set out in relation to international standards such as standard EN 15975-2 concerning “security of drinking water supply, guidelines for risk and crisis management”.
3. The risk assessment shall take into account the results from the monitoring programmes established by the second subparagraph of Article 7(1), and Article 8 of Directive 2000/60/EC of the European Parliament and of the Council (\*) for bodies of water identified under Article 7(1) that provide more than 100 m<sup>3</sup> a day on average, in accordance with Annex V to that Directive.
4. Based on the results of the risk assessment, the list of parameters in point 2 of Part B shall be extended and/or the sampling frequencies in point 3 of Part B increased, where any of the following conditions is fulfilled:
  - (a) the list of parameters or frequencies set out in this Annex is not sufficient to fulfil the obligations imposed under Article 7(1);
  - (b) additional monitoring is required for the purposes of Article 7(6);
  - (c) it is necessary to provide the necessary assurances set out in point (1)(a) of Part A.
5. Based on the results of the risk assessment, the list of parameters set out in point 2 of Part B and the sampling frequencies set out in point 3 of Part B may be reduced provided the following conditions are met:
  - (a) the frequency of sampling for *E. coli* must not be reduced below the one laid down in point 3 of Part B under any circumstances;
  - (b) for all other parameters:
    - (i) the location and frequency of sampling shall be determined in relation to the parameter's origin, as well as the variability and long-term trend of its concentration, taking into account Article 6;

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- (ii) to reduce the minimum sampling frequency of a parameter, as set out in point 3 of Part B, the results obtained from samples collected at regular intervals over a period of at least 3 years from sampling points representative of the whole supply zone must all be less than 60% of the parametric value;
- (iii) to remove a parameter from the list of parameters to be monitored, as set out in point 2 of Part B, the results obtained from samples collected at regular intervals over a period of at least 3 years from points representative of the whole supply zone must all be less than 30% of the parametric value;
- (iv) the removal of a particular parameter set out in point 2 of Part B from the list of parameters to be monitored shall be based on the result of the risk assessment, informed by the results of monitoring of sources of water intended for human consumption and confirming that human health is protected from the adverse effects of any contamination of water intended for human consumption, as laid down in Article 1;
- (v) the sampling frequency may be reduced or a parameter removed from the list of parameters to be monitored as set out in points (ii) and (iii) only if the risk assessment confirms that no factor that can be reasonably anticipated is likely to cause deterioration of the quality of the water intended for human consumption.

6. Member States shall ensure that:

- (a) risk assessments are approved by their relevant competent authority; and
- (b) information is available showing that a risk assessment has been carried out, together with a summary of its results.

#### PART D

##### **Sampling methods and sampling points**

1. Sampling points shall be determined so as to ensure compliance with the points of compliance as defined in Article 6(1). In the case of a distribution network, a Member State may take samples within the supply zone or at the treatment works for particular parameters if it can be demonstrated that there would be no adverse change to the measured value of the parameters

concerned. As far as possible, the number of samples shall be distributed equally in time and location.

2. Sampling at the point of compliance shall meet the following requirements:

- (a) compliance samples for certain chemical parameters (in particular copper, lead and nickel) shall be taken at the consumer's tap without prior flushing. A random daytime sample of one litre volume is to be taken. As an alternative, Member States may use fixed stagnation time methods that better reflect their national situation, provided that, at the supply zone level, this does not result in fewer cases of non-compliance than using the random daytime method;
- (b) compliance samples for microbiological parameters at the point of compliance shall be taken and handled according to EN ISO 19458, sampling purpose B.

3. Sampling in the distribution network, with the exception of sampling at the consumers' tap, shall be in accordance with ISO 5667-5. For microbiological parameters, sampling in the distribution network shall be taken and handled according to EN ISO 19458, sampling purpose A.

(\* ) Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (OJ L 327, 22.12.2000, p. 1).

**SCHEDULE 3****SPECIFICATIONS FOR THE ANALYSIS OF PARAMETERS**

Member States shall ensure that the methods of analysis used for the purposes of monitoring and demonstrating compliance with this Directive are validated and documented in accordance with EN ISO/IEC 17025 or other equivalent standards accepted at international level. Member States shall ensure that laboratories or parties contracted by laboratories apply quality management system practices in accordance with EN ISO/IEC 17025 or other equivalent standards accepted at international level.

In the absence of an analytical method meeting the minimum performance criteria set out in Part B, Member States shall ensure that monitoring is carried out using best available techniques not entailing excessive costs.

**PART A****Microbiological parameters for which methods of  
analysis are specified**

The following principles for methods of microbiological parameters are given either for reference whenever a CEN/ISO method is given or for guidance, pending the possible future adoption, in accordance with the procedure laid down in Article 12, of further CEN/ISO international methods for these parameters. Member States may use alternative methods, providing the provisions of Article 7(5) are met.

The methods for microbiological parameters are:

- (a) *Escherichia coli* (*E. coli*) and coliform bacteria (EN ISO 9308-1 or EN ISO 9308-2)
- (b) *Enterococci* (EN ISO 7899-2)
- (c) *Pseudomonas aeruginosa* (EN ISO 16266)
- (d) Enumeration of culturable microorganisms — colony count 22°C (EN ISO 6222)
- (e) Enumeration of culturable microorganisms — colony count 36°C (EN ISO 6222)
- (f) *Clostridium perfringens* (including spores) (EN ISO 14189).

**PART B**

**Chemical and indicator parameters for which performance characteristics are specified**

## 1. Chemical and indicator parameters

For the parameters set out in Table 1, the specified performance characteristics are that the method of analysis used must, as a minimum, be capable of measuring concentrations equal to the parametric value with a limit of quantification, as defined in Article 2(2) of Commission Directive 2009/90/EC (\*), of 30% or less of the relevant parametric value and an uncertainty of measurement as specified in Table 1. The result shall be expressed using at least the same number of significant figures as for the parametric value considered in Parts B and C of Annex I.

Until 31 December 2019 Member States may allow for the use of “trueness”, “precision” and “limit of detection” as specified in Table 2, as an alternative set of performance characteristics to “limit of quantification” and “uncertainty of measurement” as specified respectively in the first paragraph and Table 1.

The uncertainty of measurement laid down in Table 1 shall not be used as an additional tolerance to the parametric values set out in Annex I.

*Table 1***Minimum performance characteristic “Uncertainty of measurement”**

Parameters	Uncertainty of measurement (See Note 1) % of the parametric value (except for pH)	Notes
Aluminium	25	
Ammonium	40	
Antimony	40	
Arsenic	30	
Benzo(a)pyrene	50	See Note 5
Benzene	40	
Boron	25	
Bromate	40	
Cadmium	25	
Chloride	15	
Chromium	30	
Conductivity	20	
Copper	25	
Cyanide	30	See Note 6
1,2-dichloroethane	40	
Fluoride	20	
Hydrogen ion concentration pH (expressed in pH units)	0,2	See Note 7
Iron	30	

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Lead	25	
Manganese	30	
Mercury	30	
Nickel	25	
Nitrate	15	
Nitrite	20	
Oxidisability	50	See Note 8
Pesticides	30	See Note 9
Polycyclic aromatic hydrocarbons	50	See Note 10
Selenium	40	
Sodium	15	
Sulphate	15	
Tetrachloroethene	30	See Note 11
Trichloroethene	40	See Note 11
Trihalomethanes – total	40	See Note 10
Total organic carbon (TOC)	30	See Note 12
Turbidity	30	See Note 13

Acrylamide, epichlorohydrin and vinyl chloride to be controlled by product specification.

Table 2

**Minimum performance characteristics “Trueness”, “precision” and “limit of detection” – may be used until 31 December 2019**

Parameters	Trueness (See Note 2) % of the parametric value (except for pH)	Precision (See Note 3) % of the parametric value (except for pH)	Limit of detection (See Note 4) % of the parametric value (except for pH)	Notes
Aluminium	10	10	10	
Ammonium	10	10	10	
Antimony	25	25	25	
Arsenic	10	10	10	
Benzo(a) pyrene	25	25	25	
Benzene	25	25	25	
Boron	10	10	10	
Bromate	25	25	25	
Cadmium	10	10	10	
Chloride	10	10	10	
Chromium	10	10	10	
Conductivity	10	10	10	
Copper	10	10	10	
Cyanide	10	10	10	See Note 6
1,2-dichloroethane	25	25	10	
Fluoride	10	10	10	
Hydrogen ion concentration	0,2	0,2		See Note 7

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pH (expressed in pH units)				
Iron	10	10	10	
Lead	10	10	10	
Manganese	10	10	10	
Mercury	20	10	20	
Nickel	10	10	10	
Nitrate	10	10	10	
Oxidisability	25	25	10	See Note 8
Pesticides	25	25	25	See Note 9
Polycyclic aromatic hydro-Carbons	25	25	25	See Note 10
Selenium	10	10	10	
Sodium	10	10	10	
Sulphate	10	10	10	
Tetrachloroethene	25	25	10	See Note 11
Trichloroethene	25	25	10	See Note 11
Trihalomethanes — total	25	25	10	See Note 10
Turbidity	25	25	25	

Acrylamide, epichlorohydrin and vinyl chloride to be controlled by product specification.

(\*) Commission Directive 2009/90/EC of 31 July 2009 laying down, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, technical specifications for chemical analysis and monitoring of water status (OJ L 201, 1.8.2009, p.36).

## 2. Notes to Tables 1 and 2

<i>Note 1</i>	Uncertainty of measurement is a non-negative parameter characterising the dispersion of the quantity values being attributed to a measurand, based on the information used. The performance criterion for measurement uncertainty ( $k = 2$ ) is the percentage of the parametric value stated in the table or better. Measurement uncertainty shall be estimated at the level of the parametric value, unless otherwise specified.
<i>Note 2</i>	Trueness is a measure of systematic error, i.e. the difference between the mean value of the large number of repeated measurements and the true value. Further specifications are those set out in ISO 5725.
<i>Note 3</i>	Precision is a measure of random error and is usually expressed as the standard deviation (within and between batches) of the spread of results from the mean. Acceptable precision is twice the relative standard deviation. This term is further specified in ISO 5725.
<i>Note 4</i>	Limit of detection is either:  — three times the standard deviation within a batch of a natural sample containing a low concentration of the parameter, or  — five times the standard deviation of a blank sample (within a batch).

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<i>Note 5</i>	If the value of uncertainty of measurement cannot be met, the best available technique should be selected (up to 60%).
<i>Note 6</i>	The method determines total cyanide in all forms.
<i>Note 7</i>	Values for trueness, precision and uncertainty of measurement are expressed in pH units.
<i>Note 8</i>	Reference method: EN ISO 8467
<i>Note 9</i>	The performance characteristics for individual pesticides are given as an indication. Values for the uncertainty of measurement as low as 30 % can be achieved for several pesticides, higher values up to 80% may be allowed for a number of pesticides
<i>Note 10</i>	The performance characteristics apply to individual substances, specified at 25 % of the parametric value in Part B of Annex I.
<i>Note 11</i>	The performance characteristics apply to individual substances, specified at 50 % of the parametric value in Part B of Annex I.
<i>Note 12</i>	The uncertainty of measurement should be estimated at the level of 3 mg/l of the total organic carbon (TOC). CEN 1484 Guidelines for the determination of TOC and dissolved organic carbon (DOC) shall be used.
<i>Note 13</i>	The uncertainty of measurement should be estimated at the level of 1,0 NTU (nephelometric turbidity units) in accordance with EN ISO 7027.



## SCHEDULE 4

PARAMETRIC VALUES FOR RADON, TRITIUM AND ID OF  
WATER INTENDED FOR HUMAN CONSUMPTION

Parameter	Parametric value	Unit	Notes
Radon	100	Bq/l	(Note 1)
Tritium	100	Bq/l	(Note 2)
ID	0,10	mSv	

## Note 1:

- (a) Member States may set a level for radon which is judged inappropriate to be exceeded and below which optimisation of protection should be continued, without compromising water supply on a national or regional scale. The level set by a Member State may be higher than 100 Bq/l but lower than 1 000 Bq/l. In order to simplify national legislation, Member States may choose to adjust the parametric value to this level.
- (b) Remedial action is deemed to be justified on radiological protection grounds, without further consideration, where radon concentrations exceed 1 000 Bq/l.

## Note 2:

Elevated levels of tritium may indicate the presence of other artificial radionuclides. If the tritium concentration exceeds its parametric value, an analysis of the presence of other artificial radionuclides shall be required.

**MONITORING OF RADIOACTIVE SUBSTANCES****1. General principles and monitoring frequencies**

All parameters for which parametric values must be set pursuant with Article 5(1) shall be subject to monitoring. However, no monitoring of a specific parameter shall be required where a competent authority can establish that, for a period of time to be determined by them, that parameter is not likely to be present in a given supply of water intended for human consumption in concentrations which could exceed the corresponding parametric value.

In case of naturally occurring radionuclides, where previous results have shown that the concentration of radionuclides is stable, the frequency, in derogation from the minimum sampling requirements set out in point 6, is to be decided by the Member State, taking into consideration the risk to human health. A Member State is not required to monitor water intended for human consumption for radon or tritium or to establish the ID where it is satisfied on the basis of representative surveys, monitoring data or other reliable information that, for a period of time to be determined by them, the levels of radon, tritium or of the calculated ID will remain below the respective parametric values listed in Annex I. In that case, it shall communicate the grounds for its decision to the Commission and provide the Commission with the necessary documentation supporting that decision, including the findings of any surveys, monitoring or investigations carried out. In this context, the provisions with regard to the minimum sampling and analysis requirements set out in point 6 of this Annex do not apply.

**2. Radon**

Member States shall ensure that representative surveys are undertaken to determine the scale and nature of likely exposures to radon in water intended for human consumption originating from different types of ground water sources and wells in different geological areas. The surveys shall be designed in such a way that underlying parameters, and especially the geology and hydrology of the area, radioactivity of rock or soil, and well type, can be identified and used to direct further action to areas of likely high exposure. Monitoring of radon concentrations shall be undertaken where there is reason to believe, on the basis of the results of the representative surveys or other reliable information, that the parametric value laid down pursuant to Article 5(1) might be exceeded.

**3. Tritium**

Member States shall ensure that monitoring of tritium in water intended for human consumption is carried out where an anthropogenic source of tritium or other artificial radionuclides is present within the catchment area and it cannot be shown on the basis of other surveillance programmes or investigations that the level of tritium is below the parametric value listed in Annex I. Where monitoring for tritium is required, it shall be carried out at the frequencies indicated in the table appearing in point 6 of this Annex. If the concentration of tritium exceeds its parametric value, an investigation of the presence of other artificial radionuclides shall be required.

**4. Indicative dose**

Monitoring of water intended for human consumption for the ID shall be carried out where a source of artificial or elevated natural radioactivity is present and it cannot be shown on the basis of other representative monitoring programmes or other investigations that the level of ID is below the parametric value listed in Annex I. Where monitoring for artificial radionuclide levels is required, it shall be carried out at the frequency indicated in the table appearing in point 6 of this Annex. Where monitoring for natural radionuclide levels is required, each Member State shall define the frequency of the monitoring of either gross alpha activity, gross beta activity or individual natural radionuclides depending on the screening strategy adopted by it (according to Annex III). The monitoring frequency may vary from a single check measurement to the frequencies indicated in the table appearing in point 6 of this Annex. Where only a single check for natural radioactivity is required, a recheck shall be required at least where any change occurs in relation to the supply likely to influence the concentrations of radionuclides in water intended for human consumption.

#### 5. Water treatment

Where treatment to reduce the level of radionuclides in water intended for human consumption has been taken, monitoring shall be carried out at the frequencies indicated in the table appearing in point 6 to ensure the continued efficacy of that treatment.

#### 6. Minimum sampling and analysis frequencies

The minimum sampling and analysis frequency for the monitoring of water intended for human consumption supplied from a distribution network or from a tanker or used in a food production undertaking shall be as set out in the following table:

**Table**

**Minimum sampling and analysis frequencies for monitoring of water intended for human consumption supplied from a distribution network or from a tanker or used in a food production undertaking**

Volume of water distributed or produced each day within a supply zone (Notes 1 and 2) m <sup>3</sup>	Number of samples per year (Notes 3 and 4)
volume 100	(Note 5)
100 < volume 1 000	1
1 000 < volume 10 000	1 + 1 for each 3 300 m <sup>3</sup> /d and part thereof of the total volume
10 000 < volume 100 000	3 + 1 for each 10 000 m <sup>3</sup> /d and part thereof of the total volume
volume > 100 000	10 + 1 for each 25 000 m <sup>3</sup> /d and part thereof of the total volume

Note 1: A supply zone is a geographically defined area within which water intended for human consumption comes from one or more sources and within which water quality may be considered as being approximately uniform.

Note 2: The volumes are calculated as averages taken over a calendar year. A Member State may use the number of inhabitants in a supply zone instead of the volume of water to determine the minimum frequency, assuming a water consumption of 200 l/day/capita.

Note 3: As far as possible, the number of samples should be distributed equally in time and location.

Note 4: In the event of intermittent short-term supply the monitoring frequency of water distributed by tankers is to be decided by the Member State concerned.

Note 5: The frequency is to be decided by the Member State concerned.

Member States shall define sampling frequencies for water intended for human consumption put into bottles or containers intended for sale. In so doing Member States may take into consideration the volume of water produced.

### **7. Averaging**

Where a parametric value is exceeded in a particular sample, Member States shall define the extent of resampling necessary to ensure that the measured values are representative of an average activity concentration for a full year.

## SCHEDULE 6

**MONITORING FOR INDICATIVE DOSE AND ANALYTICAL  
PERFORMANCE CHARACTERISTICS****1. Monitoring for compliance with the ID**

Member States may use various reliable screening strategies to indicate the presence of radioactivity in water intended for human consumption. These strategies may include screening for certain radionuclides, or screening for an individual radionuclide, or gross alpha activity or gross beta activity screening.

(a) screening for certain radionuclides, or screening for an individual radionuclide

If one of the activity concentrations exceeds 20% of the corresponding derived value or the tritium concentration exceeds its parametric value listed in Annex I, an analysis of additional radionuclides shall be required. The radionuclides to be measured shall be defined by Member States taking into account all relevant information about likely sources of radio- activity.

(b) screening strategies for gross alpha activity and gross beta activity

Member States may use screening strategies for gross alpha activity and gross beta activity <sup>(1)</sup> to monitor for the parametric indicator value for ID.

For this purpose gross alpha activity or gross beta activity screening levels shall be set. The recommended screening level for gross alpha activity is 0,1 Bq/l. The recommended screening level for gross beta activity is 1,0 Bq/l.

If the gross alpha activity and gross beta activity are less than 0,1 Bq/l and 1,0 Bq/l respectively, the Member State may assume that the ID is less than the parametric value of 0,1 mSv and radiological investigation is not needed unless it is known from other sources of information that specific radionuclides are present in the water that are liable to cause an ID in excess of 0,1 mSv.

If the gross alpha activity exceeds 0,1 Bq/l or the gross beta activity exceeds 1,0 Bq/l, analysis for specific radionuclides shall be required.

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Member States may set alternative screening levels for gross alpha activity and gross beta activity where they can demonstrate that the alternative levels are in compliance with an ID of 0,1 mSv.

The radionuclides to be measured shall be defined by Member States taking into account all relevant information about likely sources of radioactivity. Since elevated levels of tritium may indicate the presence of other artificial radionuclides, tritium, gross alpha activity and gross beta activity should be measured in the same sample.

## 2. Calculation of the ID

The ID shall be calculated from the measured radionuclide concentrations and the dose coefficients laid down in Annex III, Table A of Directive 96/29/Euratom or more recent information recognised by the competent authorities in the Member State, on the basis of the annual intake of water (730 l for adults). Where the following formula is satisfied, Member States may assume that the ID is less than the parametric value of 0,1 mSv and no further investigation shall be required:

$$\sum_{i=1}^n \frac{C_i(o)}{C_i(d)} \leq 1$$

where

$C_i(o)$  = observed concentration of radionuclide  $i$

$C_i(d)$  = derived concentration of radionuclide  $i$

$N$  = number of radionuclides detected.

<sup>(1)</sup> Where appropriate gross beta activity may be replaced by residual beta activity after subtraction of the K-40 activity concentration.

### Derived concentrations for radioactivity in water intended for human consumption <sup>(1)</sup>

Origin	Nuclide	Derived concentration
Natural	U-238 (2)	3,0 Bq/l
	U-234 (2)	2,8 Bq/l
	Ra-226	0,5 Bq/l

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	Ra-228	0,2 Bq/l
	Pb-210	0,2 Bq/l
	Po-210	0,1 Bq/l
Artificial	C-14	240 Bq/l
	Sr-90	4,9 Bq/l
	Pu-239/Pu-240	0,6 Bq/l
	Am-241	0,7 Bq/l
	Co-60	40 Bq/l
	Cs-134	7,2 Bq/l
	Cs-137	11 Bq/l
	I-131	6,2 Bq/l

(1) This table includes values for the most common natural and artificial radionuclides; these are precise values, calculated for a dose of 0,1 mSv, an annual intake of 730 litre and using the dose coefficients laid down in Annex III, Table A of Directive 96/29/Euratom; derived concentrations for other radionuclides can be calculated on the same basis, and values can be updated on the basis of more recent information recognised by the competent authorities in the Member State.

(2) This table allows only for the radiological properties of uranium, not for its chemical toxicity.

### 3. Performance characteristics and methods of analysis

For the following parameters and radionuclides, the method of analysis used must, as a minimum, be capable of measuring activity concentrations with a limit of detection specified below:

Parameters and radionuclides	Limit of detection (Notes 1, 2)	Notes
Tritium	10 Bq/l	Note 3
Radon	10 Bq/l	Note 3
gross alpha activity	0,04 Bq/l	Note 4

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gross activity	beta	0,4 Bq/l	Note 4
U-238		0,02 Bq/l	
U-234		0,02 Bq/l	
Ra-226		0,04 Bq/l	
Ra-228		0,02 Bq/l	Note 5
Pb-210		0,02 Bq/l	
Po-210		0,01 Bq/l	
C-14		20 Bq/l	
Sr-90		0,4 Bq/l	
Pu-239/Pu-240		0,04 Bq/l	
Am-241		0,06 Bq/l	
Co-60		0,5 Bq/l	
Cs-134		0,5 Bq/l	
Cs-137		0,5 Bq/l	
I-131		0,5 Bq/l	

Note 1: The limit of detection shall be calculated according to the ISO standard 11929: Determination of the characteristic limits (decision threshold, detection limit and limits of the confidence interval) for measurements of ionising radiation — Fundamentals and application, with probabilities of errors of 1st and 2nd kind of 0,05 each.

Note 2: Measurement uncertainties shall be calculated and reported as complete standard uncertainties, or as expanded standard uncertainties with an expansion factor of 1,96, according to the ISO Guide for the Expression of Uncertainty in Measurement.

Note 3: The limit of detection for tritium and for radon is 10 % of its parametric value of 100 Bq/l.

Note 4: The limit of detection for gross alpha activity and gross beta activities are 40 % of the screening values of 0,1 and 1,0 Bq/l respectively.

Note 5: This limit of detection applies only to initial screening for ID for a new water source; if initial checking indicates that it is not plausible that Ra-228 exceeds 20 % of the derived concentration, the limit of detection may be increased to 0,08 Bq/l for routine Ra-228 nuclide specific measurements, until a subsequent re-check is required.