

Questionnaire (translated into English from the Spanish original version)

**Questionnaire to water companies
and drinking water treatment plants**

FOR THE EPIDEMIOLOGICAL STUDY ON CHLORINATED DRINKING WATER,
FUNDED BY THE EUROPEAN UNION, THE *FONDO DE INVESTIGACIÓN*
SANITARIA AND WITH THE COLLABORATION OF THE WORLD
HEALTH ORGANIZATION

To be returned to:
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**TO BE COMPLETED BY WATER DISTRIBUTION
COMPANIES**

1. GENERAL INFORMATION

- a) Company name.....
.....
- b) Address
.....
- c) Name and title of the person completing this questionnaire:
.....
.....
- d) Date when the questionnaire is completed
- e) Period of functioning of the company:
 From year to year
- f) Indicate the municipalities covered by your company:
municipality: ,from year to year
municipality: ,from year to year
municipality: ,from year to year
municipality: ,from year to year
municipality: ,from year to year
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municipality: ,from year to year

g) To how many people, approximately, is the company supplying water?:

2. INFORMATION ON THE WATER SUPPLIED

a) The source of the water supplied is:

- a) surface
- b) ground
- c) sea
- d) other (specify)

Please indicate the name of the water source (name of the river, etc.)

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d) If you obtain water from other water companies please indicate them:

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e) If you sell water to other water companies please indicate them:

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b) Do you use chlorine as a disinfectant? YES NO

If yes:

- Do you keep a record of the free (residual) chlorine in the water?

YES NO

(If yes) Year started?

- Do you do these analyses in randomly selected samples?

YES NO

Year started?

c) Indicate which other halogenated compounds do you usually monitor, and from what year did you record the data:

COMPOUND: Year started:.....

COMPOUND: Year started:.....

COMPOUND: Year started:.....

COMPOUND: Year started:.....

COMPOUND: Year started:.....

COMPOUND: Year started:.....

Please complete the following table with any information you have available (mean annual level):

	Trihalomethanes (THM)		chloroform		dichlorobromomethane		chlorodibromomethane		bromoform	
	level	No. measurements/year	level	No. measurements/year	level	No. measurements/year	level	No. measurements/year	level	No. measurements/year
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Indicate the units of the measurements:

**TO BE COMPLETED BY WATER TREATMENT PLANTS AND
BY WATER DISTRIBUTION PLANTS THAT HAVE
TREATMENT FACILITIES.**

1. GENERAL INFORMATION

- a) Company name
-
-
- b) Address:
-
-
- c) Name and title of the person completing this questionnaire:
.....
-
- d) Date of completion of this questionnaire
- e) Period during which the company has been functioning
From year to year
- f) Indicate which municipalities are covered by your plant:
municipality: , from year to year
municipality: , from year to year
municipality: , from year to year
municipality: , from year to year
municipality: , from year to year
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municipality: ,from year to year

municipality: ,from year to year

municipality: ,from year to year

g) To what water distribution plants to you sell the water treated in your plant?

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2. WATER SOURCE

- The source of the water treated in the plant is:
 - a) surface
 - b) ground
 - c) sea
 - d) other (specify)
- If there is a specific name for the source of the water (name of the river, dam) please indicate it:

.....

.....

3. WATER QUALITY BEFORE TREATMENT

- If you have information for the following indicators of **water quality** before the treatment process, please complete the tables using average annual values.

	Chlorine demand		Water flow (volume/time)		pH		temperature		Bromine		Organic matter*		Arsenic		Ammonia		Residual free chlorine	
	Level	No. Measurements/year	level	No. Measurements/year	level	No. Measurements/year	level	No. Measurements/year	level	No. Measurements/year	level	No. Measurements/year	level	No. Measurements/year	level	No. Measurements/year	level	No. Measurements/year
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* Permanganate oxidability.

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Indicate the units of measurement:

- Chlorine demand:
- Water flow:
- Temperature:
- Bromine:
- Organic matter:
- Arsenic:
- Ammonia:
- Residual free chlorine:

4. TREATMENT

a) What treatment process is currently followed by the plant?

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.....
.....
.....
.....

(If available, please attach a scheme of the process)

b) Indicate the different treatment process that have been followed during the period the plant has been working, specifying the disinfectant and the phase when it was used.

From year to year, the treatment process was:

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From year to year, the treatment process was:

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From year to year, the treatment process was:

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From year to year, the treatment process was:

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From year to year, the treatment process was:
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From year to year, the treatment process was:
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From year to year, the treatment process was:
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From year to year, the treatment process was:
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5. DISINFECTION

- a) What agent was used for the pre-oxidation?
- **Chlorine:**
 - **Chlorine gas:** from year to year
 - **hypochlorite** from year to year
 - **chloramine:** from year to year
 - **chlorine dioxide** from year To year
 - **ozone** from year To year
 - **H₂O₂:** from year To year
 - **KMnO₄:** from year To year
- other** (indicate which mixtures where used and during which period):
-
.....
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.....

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b) If you are using chlorine as a disinfectant:

b.1. When did you start using pre-chlorination? From year to year
(if you have used pre-chlorination in different periods, please indicate them)

b.2. In which other steps of the process have you been adding chlorine?

- After treatment (**post- chlorination**) Yes No
- In both cases (pre and post chlorination) Yes No
- In other parts of the treatment process (indicate them)

.....

.....

b.3. Do you monitor the amount of **chlorine** added in each phase:

- Pre-chlorination YES NO
- Post-chlorination YES NO
- Other parts of the process: YES NO

b.4. In what year did you start recording this information?

b.5. Do control the **residual free chlorine** in the water after treatment?

b.6. In what year did you start recording this information?

c) What other disinfectants have you used and in what steps of the treatment process?

Disinfectant used: in process step:

....., from year to year

Disinfectant used: in process step:

....., from year to year

Disinfectant used: in process step:

....., from year to year

Disinfectant used: in process step:

....., from year to year

Disinfectant used: in process step:

....., from year to year

Disinfectant used: in process step:

....., from year to year

Disinfectant used: in process step:

.....,from year to year

Disinfectant used: in process
step:

.....,from year to year

Disinfectant used: in process
step:

.....,from year to year

Disinfectant used: in process
step:

.....,from year to year

Please, fill in the following table, with annual mean values in treated water.

	Trihalomethanes (THM)		chloroform		dichlorobromomethane		chlorodibromomethane		bromoform	
	level	No. measurements/year	level	No. measurements/year	level	No. measurements/year	level	No. measurements/year	level	No. measurements/year
1970										
1971										
1972										
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Indicate the units used for the measurements: