

TEST REPORT

Customer TAPP WATER, S.L.
C/ Taulat, 113
08005 BARCELONA

Analysis COMPLETE ANALYSIS. Parameters listed in Annex I parts A, B1, C of Royal Decree 140/2003 and other parameters requested.

Specification Real Decreto 140/2003, de 7 de febrero, por el que se establecen los criterios sanitarios de la calidad del agua de consumo humano". Consolidated text (August 1st, 2018).

Programa de Vigilància i Control Sanitaris de les aigües de Consum Humà de Catalunya" - Catalan Government - Department of Health Services - Directorate-General for Public Health (December 2005)

Sample Location
Sample collection point Water tap installed in the R & D room of the Dr Oliver Rodes laboratory

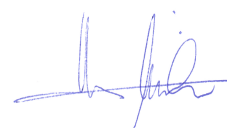
Sample Information
Sample type Water
Reference Tap water before filter
Sampling description Grab sample taken by trained technicians of this Laboratory.
IP PESE-01
Sample Collection Date Feb 22,2019 - 11:32 h.
Containers Prepared according procedure PESE-05.

Dates	Reception Date	Starting Date	Ending Date
	Feb 22,2019	Feb 22,2019	Mar 08,2019

Technical Manager
Marta Pedemonte Almirall
Approval
Mar 11,2019



Microbiology Director
Míriam Monedero Boado
Approval
Mar 11,2019



RESULTS OBTAINED

Grouped in sets RD 140/2003

ANNEX I - PART A: MICROBIOLOGICAL PARAMETERS

Parameter	Notes	Result (Uncertainty)	Parametric Value	Unit
<i>Escherichia coli</i> ISO 9308-1:2014. Filtration by count		0	0	cfu/100 mL
Enterococcus IP PAMB-15. Filtration by count		0	0	cfu/100 mL
<i>Clostridium perfringens</i> IP PAMB-20. Filtration by count		0	0	cfu/100 mL

ANNEX I - PART C: INDICATOR PARAMETERS

Parameter	Notes	Result (Uncertainty)	Parametric Value	Unit
Colony count at 22°C IP PAMB-36. Count	1	0	---	cfu/mL
Coliform Bacteria ISO 9308-1:2014. Filtration by count		0	0 [10] ⁵	cfu/100 mL

ANNEX I - PART B: CHEMICAL PARAMETERS

Parameter	Notes	Result (Uncertainty)	Parametric Value	Unit
Antimony IP PAFQ-97. ICP-MS		<2.0	5.0	µg Sb/L
Arsenic IP PAFQ-97. ICP-MS		<2.0	10	µg As/L
Benzene IP PAFQ-39. GC-MS (Gas Chromatography-Mass Spectrometry)		<0.5	1.0	µg/L
* Benzo (a) pyrene IP PAFQ-99. GC-MS/MS		<0.010	0.010	µg/L
Boron IP PAFQ-97. ICP-MS		0.211 (±15%)	1.0	mg B/L
Bromate IP PAFQ-08. Ion chromatography.		<2	10	µg BrO ₃ /L
Cadmium IP PAFQ-97. ICP-MS		<1.0	5.0	µg Cd/L
* Cyanide LC LA A-F-PE-0057. FIAS - Espectrometria UV-Vis FIAS - Spectrometry UV-Vis		<10	50	µg CN/L
Copper IP PAFQ-97. ICP-MS		0.077 (±20%)	2.0	mg Cu/L
Chromium IP PAFQ-97. ICP-MS		5.8 (±20%)	50	µg Cr/L
1,2-dichloroethane IP PAFQ-39. GC-MS (Gas Chromatography-Mass Spectrometry)		<0.5	3.0	µg/L
Fluoride IP PAFQ-51. Ion chromatography.		<0.20	1.5	mg F/L
Polycyclic Aromatic Hydrocarbons				
* Benzo (b) fluoranthene IP PAFQ-99. GC-MS/MS		<0.01	---	µg/L
* Benzo (k) fluoranthene IP PAFQ-99. GC-MS/MS		<0.02	---	µg/L
* Benzo (g,h,i) perylene IP PAFQ-99. GC-MS/MS		<0.02	---	µg/L
* Indene (1,2,3-cd) pyrene IP PAFQ-99. GC-MS/MS		<0.02	---	µg/L
* Total polycyclic aromatic hydrocarbons (Benzo (b) fluoranthene + Benzo (k) fluoranthene + Benzo (g,h,i) perylene + Indene (1,2,3-cd) pyrene). IP PAFQ-99. By calculation.		<0.10	0.10	µg/L
Mercury IP PAFQ-85. Atomic fluorescence		<0.20	1.0	µg Hg/L
Nickel IP PAFQ-97. ICP-MS		<10	20	µg Ni/L
Nitrate IP PAFQ-51. Ion chromatography.		11.5 (±15%)	50	mg NO ₃ /L
Nitrite IP PAFQ-17. UV-Vis Spectrophotometry.	2	<0.02	0.5	mg NO ₂ /L
Nitrate/50 + Nitrite/3 IP . By calculation.		0.2	1.0	mg/L

Parameter	Notes	Result (Uncertainty)	Parametric Value	Unit
* Total pesticides: IP PAFQ-99. By calculation.		<0.50	0.50	µg/L
Organochlorine pesticides				
* Aldrin IP PAFQ-99. GC-MS/MS		<0.01	0.03	µg/L
* alfa - HCH IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* beta - HCH IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* gamma - HCH (Lindane) IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* delta - HCH IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* 4,4' - DDD IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* 4,4' - DDE IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* 4,4' - DDT IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* Dieldrin IP PAFQ-99. GC-MS/MS		<0.01	0.03	µg/L
* Endosulfan I IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* Endosulfan II IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* Endosulfan sulphate IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* Endrin IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* Heptachlor IP PAFQ-99. GC-MS/MS		<0.01	0.03	µg/L
* Heptachlor epoxide IP PAFQ-99. GC-MS/MS		<0.01	0.03	µg/L
* Methoxychlor IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* Chlorobenzilate IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* Chlorpyrifos IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* DCPA IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* Hexachlorobenzene IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* cis-Permethrin IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* trans - Permethrin IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* Trifluralin IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
Organophosphorous pesticides:				
* Diazinon IP PAFQ-99. GC-MS/MS		<0.05	0.10	µg/L
* Disulfoton IP PAFQ-99. GC-MS/MS		<0.05	0.10	µg/L
* Ethoprop IP PAFQ-99. GC-MS/MS		<0.05	0.10	µg/L
* Fenthion IP PAFQ-99. GC-MS/MS		<0.05	0.10	µg/L
* Methyl parathion IP PAFQ-99. GC-MS/MS		<0.05	0.10	µg/L
* Phorate IP PAFQ-99. GC-MS/MS		<0.05	0.10	µg/L
* Ronnel (Fenchlorfos) IP PAFQ-99. GC-MS/MS		<0.05	0.10	µg/L
* Tokuthion IP PAFQ-99. GC-MS/MS		<0.05	0.10	µg/L
* Trichloronate IP PAFQ-99. GC-MS/MS		<0.05	0.10	µg/L
Triazine (herbicide):				
* Atrazine IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* Atrazine-desethyl IP PAFQ-99. GC-MS/MS		<0.05	0.10	µg/L
* Prometryn IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* Propazine IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* Simazine IP PAFQ-99. GC-MS/MS		<0.03	0.10	µg/L

Parameter	Notes	Result (Uncertainty)	Parametric Value	Unit
* Terbutylazine IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
* Terbutryn IP PAFQ-99. GC-MS/MS		<0.01	0.10	µg/L
Lead IP PAFQ-97. ICP-MS		<5.0	10	µg Pb/L
Selenium IP PAFQ-97. ICP-MS		<5	10	µg Se/L
Trihalometanes				
Chloroform (Trichloromethane) IP PAFQ-39. GC-MS (Gas Chromatography-Mass Spectrometry)		<5	---	µg/L
Bromoform (Tribromomethane) IP PAFQ-39. GC-MS (Gas Chromatography-Mass Spectrometry)		24 (±24%)	---	µg/L
Dibromochloromethane IP PAFQ-39. GC-MS (Gas Chromatography-Mass Spectrometry)		5 (±24%)	---	µg/L
Bromodichloromethane IP PAFQ-39. GC-MS (Gas Chromatography-Mass Spectrometry)		<1	---	µg/L
Total Trihalomethanes IP PAFQ-39. By calculation.		29 (±24%)	100	µg/L
Tetrachloroethene IP PAFQ-39. GC-MS (Gas Chromatography-Mass Spectrometry)		<1	---	µg/L
Trichloroethene IP PAFQ-39. GC-MS (Gas Chromatography-Mass Spectrometry)		<1	---	µg/L
Tetrachloroethene + Trichloroethene IP PAFQ-39. By calculation.		<2	10	µg/L

Annex I - Part B.2 : Chemical parameters that are handled according to product specifications.

Parameter	Notes	Result (Uncertainty)	Parametric Value	Unit
* Acrylamide LC LA A-BV-PE-0086 HPLC-MS-MS GC-ECD (Gas Chromatography-Electron Capture Detector)	3	<0.05	0.10	µg/L
* Epichlorohydrin LC LA A-BS-PE-0077 LLE-GC-MS (3Q) GC-MS (Gas Chromatography-Mass Spectrometry)	3	<0.1	0.10	µg/L
* Vinyl chloride LC LA A-BV-PE-0063 P&T-GC-MS(SIM).	3	<0.1	0.50	µg/L

ANNEX I - PART C: INDICATOR PARAMETERS

Parameter	Notes	Result (Uncertainty)	Parametric Value	Unit
Aluminum IP PAFQ-97. ICP-MS		26 (±25%)	200	µg Al/L
Ammonium IP PAFQ-19. UV-Vis Spectrophotometry.		<0.10	0.50 [0.50] [§]	mg NH ₄ /L
Total residual chlorine Determination : In Situ IP PAFQ-40. Colorimetry.		0.77 (±10%)	---	mg Cl ₂ /L
Combined residual chlorine Determination : In Situ IP PAFQ-40. Colorimetry.	4	0.21 (±25%)	2.0	mg Cl ₂ /L
Free residual chlorine Determination : In Situ IP PAFQ-40. Colorimetry.	4	0.56 (±20%)	1.0	mg Cl ₂ /L
Chloride IP PAFQ-51. Ion chromatography.		267 (±15%)	250	mg Cl/L
* Colour IP PAFQ-16. Colorimetry.		<5	15	mg/L Pt/Co
Conductivity at 20°C IP PAFQ-04. Electrometry.		1518 (±10%)	2500	µS/cm
Iron IP PAFQ-97. ICP-MS		<10	200	µg Fe/L
Manganese IP PAFQ-97. ICP-MS		<5.0	50 [400] [§]	µg Mn/L
* Odour Determination : In Situ - Type of odour : Anomalous odour unfound IP PAFQ-31. Organoleptic.	5	1	3	Dilution index.
Oxidisability (KMnO ₄) IP PAFQ-24. Titration.		0.6 (±15%)	5.0 [5.0] [§]	mg O ₂ /L
pH Temperature : 19 °C IP PAFQ-03. Electrometry.	6	7.45 (±0.17)	6.5 - 9.5	

Parameter	Notes	Result (Uncertainty)	Parametric Value	Unit
* Taste Determination : In Situ - Type of flavour : IP PAFQ-31. Organoleptic.	5 7	1	3	Dilution index.
Sodium IP PAFQ-65. Atomic emission.		153 (±11%)	200	mg Na/L
Sulphate IP PAFQ-51. Ion chromatography.		190 (±10%)	250	mg SO ₄ /L
Turbidity IP PAFQ-15. Nephelometry.	8	<0.2	5 [5.0] [§]	UNF
Saturation index (Langelier) IP PAFQ-48. By calculation.	9	0.5	---	

OTHER DETERMINATIONS NOT INCLUDED IN RD 140/2003

Parameter	Notes	Result (Uncertainty)	Parametric Value	Unit
Carbonate IP PAFQ-46. Titration.		<1.2	---	mg CO ₃ /L
Alkalinity (T.A.C.) IP PAFQ-46. Titration.		319 (±15%)	---	mg CaCO ₃ /L
Alkalinity (T.A.) IP PAFQ-46. Titration.		<1.0	---	mg CaCO ₃ /L
Bicarbonate IP PAFQ-46. Titration.		389 (±15%)	---	mg HCO ₃ /L
Calcium IP PAFQ-50. Titration.		136 (±9%)	---	mg Ca/L
Total hardness IP PAFQ-09. By calculation.		52.4 (±6%)	---	°F
Total hardness IP PAFQ-09. By calculation.		524 (±6%)	---	mg CaCO ₃ /L
Magnesium IP PAFQ-50. Titration.		44.8 (±16%)	---	mg Mg/L
Temperature Determination : In Situ IP PAFQ-49. Thermometry		16 (±1)	---	°C

NOTES

Specific Notes

§	Parametric value specific for the local autonomies surveillance program.
--	The applicable specification (see front page report) does not indicate parametric value for this parameter. When specification is not indicated, this symbol turns up in all parameters.
IP	Internal procedure.
LC	Determination carried out by an assisting laboratory.
1	En red de distribución: Sin cambios anómalos con respecto a la salida de la estación de tratamiento. A la salida de la ETAP (tratamiento): El valor paramétrico es 100 ufc en 1 mL. (R.D. 140/2003)
2	A la salida de ETAP y/o depósito: El valor paramétrico es 0.1 mg NO ₂ /L. En red de distribución: El valor paramétrico es 0.5 mg NO ₂ /L. (R.D. 140/2003)
3	El valor del parametro se refiere a la concentración monomérica residual en el agua, calculada con arreglo a las características de la migración máxima del polímero correspondiente en contacto con el agua. (R.D. 1744/2003)
4	Los valores paramétricos se refieren al nivel en la red de distribución. En el caso de la industria alimentaria, este parámetro no se contemplará en el agua de proceso. (R.D. 140/2003)
5	En caso de que la determinación de olor y/o sabor sea apreciable se realizará a 25°C y se calculará el índice de dilución hasta desaparición de olor y/o sabor.
6	Para la industria alimentaria, el valor mínimo se podrá reducir a 4.5 unidades de pH. (R.D. 140/2003)
7	La determinación organoléptica de sabor únicamente se realizará en aguas cloradas o de potabilidad bacteriológica previamente conocida.
8	A la salida de ETAP y/o depósito: El valor paramétrico es 1 UNF. En red de distribución: El valor paramétrico es 5 UNF. (R.D. 140/2003)
9	El agua en ningún momento podrá ser agresiva ni incrustante. El resultado de calcular el Índice de Langelier debería estar comprendido entre ± 0.5. (R.D. 140/2003)

General Notes

If the indicated numerical values are followed by the sign "<" they mean that the result obtained does not fall below the lowest limit of quantification of the corresponding analytical method.

If the indicated numerical values are followed by the sign ">" they mean that the result obtained does not fall above the upper limit of quantification of the corresponding analytical method.

Uncertainty is indicated in physicochemical tests if the result falls in of accredited working range. Uncertainty in microbiological test, included in the scope of accreditation, is available to costumer.

This report of results only vouches for the analysed sample.

Partial reproduction of this report is not permitted without the written authorization of Laboratorio Dr. Oliver Rodés, S.A.

El Prat de Llobregat (Barcelona), March 08th, 2019