Client: Cerâmica Stéfani S.A
Contact: Paulo Sérgio da Silva
Address: Avenida Major Hilário Tavares Pinheiro, 1388
City: Jaboticabal State: SP ZIP Code: 14871900
OS: 11622/14394-0
Sample received on: June, 06th 2018
Tests carried out between: June, 27th 2018 – July, 31th 2018

Ensaios NBR ISO/IEC 17025 CRL 0135

Test (s) on device(s) for improving the quality of drink water

Test for Determination of Extracts

1 - OBJECTICVE

Check the determination of extractables in devices for improving the quality of water for human consumption.

2 - INITIAL CONSIDERATIONS

A sample which identifications are presented in Table 1.

Table 1 – Sample identifications.

CCDM Identifications	Client Identification
LabFil180539	Model: Terracotta Water Puriefer - POU-Gravity Internal volume: 5L Discard: 12L Flow rate: 1,5L / h – Development

3 - METHOD(S)

The methodology used is in accordance with ABNT NBR 16098: 2012 - "*Device for improving the quality of drinking water - Requirements and test methods - Annex G - Test for determination of extractables*".

Table 2 - Data to perform the test.

Internal volume (L)	05
Flow (L/h)	1,5
Discard volume (L)	12
Number of devices tested	01
Serial number	-

The test was performed in the period from 06/27/2018 to 06/28/2018 in the equipments presented in Table 3.

Table 3 - Traceability of measurements.

Code	Equipment	Certificate	Expiration Date
LabFil-005	Spectrophotometer	R10958/16	01/09/2018
LabFil-028	Portable Turbidimeter	R9685/17	26/07/2018
LabFil-068	Temperature Transmitter	LV01383-02727-18-R0	01/02/2020
LabFil-186	pHmeter	LV01383-14543-18-R0	20/06/2019
LabFil-190	Conductivity Meter	R9044/16	06/07/2020

Before the test, 4 liters of test water were collected for the blank test. After installation and conditioning of the devices, the water flow was interrupted and remained in contact with the test water for 24 hours. After this period a volume of 4 liters of water was collected for analysis.

The performance of the test until the collect of the water for analysis and the determination of the parameters pH, total dissolved solids and turbidity were performed in the CCDM. The determination of the other parameters was subcontracted from the laboratory *Digimed Environmental Analyzes accredited by Cgcre under the number CRL 0266*. The methodological references of these analyzes are described in Technical Reports A3585 and A3600.

4 - RESULT(S)

The result of the blank analysis is given in Table 4.

Table 4 - Results of the concentration of the extractable parameters in the test water (blank analysis).

Parameter	Unit	Maximum Allowed Value	Limit of Quantification	Result	Measurement Uncertainty (±)
Aluminum	mg/L	0,2	0,06	<0,06	0,030000
Antimony	mg/L	0,005	0,005	<0,005	0,000032
Arsenic	mg/L	0,01	0,005	<0,005	0,000045
Cadmium	mg/L	0,005	0,001	<0,001	0,000005
Lead	mg/L	0,01	0,005	<0,005	0,000030
Chloride	mg/L	250	0,50	3,57	0,600000
Copper	mg/L	2	0,02	0,02	0,003000
Apparent color	uH [a]	15	3,2	<3,2	0,740000
Total chromium	mg/L	0,05	0,025	<0,025	0,000120
Toughness	mg/L	500	2,0	21,91	0,920000
Iron	mg/L	0,3	0,2	<0,20	0,020000
Manganese	mg/L	0,1	0,08	<0,08	0,010000
Ammonia (as NH3)	mg/L	1,5	0,05	<0,05	0,012000
Silver	mg/L	0,1	0,02	<0,02	0,010000
Sodium	mg/L	200	0,6	3,4	0,150000
Sulfate	mg/L	250	10	<10	0,230000

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Hydrogen Sulfide	mg/L	0,1	0,002	<0,002	0,000080
Surfactants	mg/L	0,5	0,2	<0,2	0,016000
Zinc	mg/L	5	0,06	0,08	0,010000
Bromate	mg/L	0,01	0,01	<0,01	0,000490
Di (2-ethylhexyl) phthalates	µg/L	8	0,28	<0,28	0,130000
Ethylbenzene	mg/L	0,2	0,003	<0,003	0,001300
Monochlorobenzene	mg/L	0,12	0,006	<0,006	0,002500
Toluene	mg/L	0,17	0,002	<0,002	0,000820
Trihalomethanes	mg/L	0,1	0,0104	<0,0104	0,004300
Xylene	mg/L	0,3	0,0077	<0,0077	0,003200
pH	-	6,0 a 9,5	4,1	6,93	0,04
Total dissolved solids	mg/L	1000	3,48	25,3	6,98
Turbidity	UT [b]	5	0,06	0,38	0,21

[a] Hazen Unit (mg Pt-Co / L) [b] Turbidity unit

The expanded uncertainty of measurement U reported is stated as the standard measurement uncertainty multiplied by the coverage factor k, which for a distribution t with effective degrees of freedom (veff) corresponds to a 95% coverage probability.

The result of the extractable content present in the water after 24 hours of exposure to the constituent materials of the devices is shown in Table 5.

Table 5 - Results of the concentration of the extractable parameters in the water after 24 hours of exposure in the devices.

Parameter	Unit	Maximum Allowed Value	Limit of Quantification	Result	Measurement Uncertainty (±)
Aluminum	mg/L	0,2	0,06	<0,06	0,030000
Antimony	mg/L	0,005	0,005	<0,005	0,000032
Arsenic	mg/L	0,01	0,005	<0,005	0,000045
Cadmium	mg/L	0,005	0,001	<0,001	0,000005
Lead	mg/L	0,01	0,005	<0,005	0,000030
Chloride	mg/L	250	0,50	5,61	0,640000
Copper	mg/L	2	0,02	<0,02	0,003000
Apparent color	uH [a]	15	3,2	<3,2	0,740000
Total chromium	mg/L	0,05	0,025	<0,025	0,000120
Toughness	mg/L	500	2,0	29,88	0,980000
Iron	mg/L	0,3	0,2	<0,20	0,020000
Manganese	mg/L	0,1	0,08	<0,08	0,010000
Ammonia (as NH3)	mg/L	1,5	0,05	<0,05	0,012000
Silver	mg/L	0,1	0,02	<0,02	0,010000
Sodium	mg/L	200	0,6	4,3	0,150000
Sulfate	mg/L	250	10	<10	0,230000
Hydrogen Sulfide	mg/L	0,1	0,002	<0,002	0,000080
Surfactants	mg/L	0,5	0,2	<0,2	0,01600
Zinc	mg/L	5	0,06	<0,06	0,010000
Bromate	mg/L	0,01	0,01	<0,01	0,000490

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Di (2-ethylhexyl) phthalates	µg/L	8	0,28	<0,28	0,130000
Ethylbenzene	mg/L	0,2	0,003	<0,003	0,001300
Monochlorobenzene	mg/L	0,12	0,006	<0,006	0,002500
Toluene	mg/L	0,17	0,002	<0,002	0,000820
Trihalomethanes	mg/L	0,1	0,0104	<0,0104	0,004300
Xylene	mg/L	0,3	0,0077	<0,0077	0,003200
pH	-	6,0 a 9,5	4,1	9,03	0,04
Total dissolved solids	mg/L	1000	3,48	42,0	6,98
Turbidity	UT [b]	5	0,06	0,31	0,21

[a] Hazen Unit (mg Pt-Co / L) [b] Turbidity unit

The expanded uncertainty of measurement U reported is stated as the standard measurement uncertainty multiplied by the coverage factor k, which for a distribution t with effective degrees of freedom (veff) corresponds to a 95% coverage probability.

Note:
1. There is no note.

5 – CONCLUSIONS

The opinions and interpretations expressed below are not part of the scope of accreditation of this laboratory.

The apparatus was considered approved in the test for the determination of extractables since the concentration of all analyzed parameters was lower than the maximum allowed value by the standard ABNT NBR 16098: 2012 and Portaria Inmetro n ° 394 of 08/25/2014 Annex C.

---------- END OF SECTION ----------

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ATTACHMENTS

1. Sample evidence.

São Carlos, August 29th, 2018.

CHEM. NATALIA MEINL SCHMIEDT SATTOLO, MSc.
Technical Supervisor
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