

REPORT OF MICROBIOLOGICAL ANALYSIS OF DRINKING WATER SAMPLE

SIST EN ISO 9308-1:2014 Water quality - Determination of the number of Escherichia coli and coliforms - Part 1: Membrane filtration method for waters with a small number of bacteria

SIST EN ISO 7899-2:2000 Water quality - Determination of the number of intestinal enterocococities - Part 2: Membrane filtration method

SIST EN ISO 6222:1999 Water quality - Determination of the number of culturable microorganisms - method of counting microbial colonies by the inoculation method in a solid agar medium

MODIF. ISO: Water quality - Determination of the number of culturable microorganisms - method of counting microbial colonies by the inoculation method on a solid agar medium

Client: G-PV Ltd.

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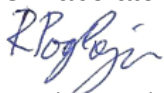
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Date of Report: 4.7.2023

Place: Ljubljana

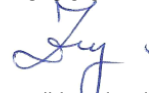
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The presented test results refer exclusively to the herein defined test objects. Any extracts of this report are possible only with written approval of Microbium LLC

Report ID:

Report no. 2023-07/04-23/0019-M

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Sample Drinking water sample

Company	G-PV Ltd.
Sample volume	Bottle with volume 500 mL
Sample temperature	/
Transport conditions	Transportation temperature 0-4 °C
Saving of sample	Dry, cold environment, temperature 0-4 °C
Sample condition	Sample is suitable to be accepted into analytical laboratory

Summary of experimental conditions	Laboratory	Analitical laboratory, Microbium LLC
	Time period of Analysis	29.6.2023- 2.7.2023
	Room Temperature	25,0 °C
	Humidity	39 %
Test informations	Test sample	Drinking water
	Incubation media	Agar R2A Agar YEA (Yeast Extract Agar) CompactDry (<i>Escherichia coli</i>) CompactDry (<i>coliform organisms</i>) CompactDry (<i>Enterococcus sp.</i>)
	Incubation temperature	36±2 °C, 22±2 °C
	Incubation time	21±3h, 44±4h, 68±4h

Sample list	Sample	Date of sampling	Sample volume
Location: Fiddien Rabat, Malta	Raw water sample taken from the tap	26.6.2023	500 mL
	Sample taken from the tap treated with the device ELIMINATOR TAP-241	26.6.2023	500 mL

Sample list	Sample	Date of sampling	Sample volume
Location: Marsa, Malta	Raw water sample taken from the tap	26.6.2023	500 mL
	Sample taken from the tap treated with the device ELIMINATOR TAP-241	26.6.2023	500 mL

Summary

Samples: Water sampled from location Fiddien Rabat, Malta (water from the state water supply network)

1.) Raw water sample taken from the tap:

Enterococcus sp. was detected in low concentrations. The total number of bacteria at incubation temperatures of 22°C and 36°C was in accordance with the drinking water policy.

Due to the presence of *Enterococcus sp.* the sample does not meet the criteria of the Drinking Water Regulation.

2.) Sample taken from the tap treated with the device ELIMINATOR TAP-241:

The presence of microorganisms was not detected in the test sample of drinking water.

The drinking water sample complies with the drinking water policy.

Samples: Water sampled from location Marsa, Malta (water from the state water supply network)

3.) Raw water sample taken from the tap:

In the test sample of drinking water the presence of a mixed group of microorganisms at a total concentration of 70 CFU/ mL was detected at the incubation temperature of 22°C on the classic Yeast Extract Agar medium.

The drinking water sample complies with the drinking water policy.

4.) Sample taken from the tap treated with the device ELIMINATOR TAP-241:

The presence of microorganisms was not detected in the test sample of drinking water.

The drinking water sample complies with the drinking water policy.

Expert opinion

According to results it can be confirmed that water quality has been improved with use of device ELIMINATOR TAP-241. Microbial species *Enterococcus sp.* and other non-specific bacteria had been successfully eliminated from water samples. Drinking water, treated with device ELIMINATOR TAP-241 can be therefore suitable for household and farming usage.

Efficiency of device ELIMINATOR TAP-241 has been proven several times. We presume that raw water can be successfully treated with mentioned device.

1.) Results of sample examination using classic microbiological methods

Samples: Water sampled from location Fiddien Rabat, Malta (water from the state water supply network)

Classical microbiological methods					
Time period	29.6.2023 - 30.6.2023	29.6.2023 - 30.6.2023	29.6.2023 - 30.6.2023	29.6.2023 - 2.7.2023	29.6.2023 - 1.7.2023
Test	<i>Escherichia coli</i>	Coliform bacteria	<i>Enterococcus</i> sp.	Total count	Total count
Incubation temperature	37°C	37°C	37°C	22°C	37°C
Standard:	ISO 9308-1	ISO 9308-1	ISO 7899-2:2000	ISO 6222:1999	ISO 6222:1999
Unit	CFU/ 100 mL	CFU/ 100 mL	CFU/ 100 mL	CFU/ mL	CFU/ mL
Sample	Raw water sample taken from the tap	0	0	7	<10
	Sample taken from the tap treated with the device ELIMINATOR TAP-241	0	0	0	<10

Classical microbiological methods with standard modification		
Time period	29.6.2023 – 2.7.2023	29.6.2023 – 1.7.2023
Test	Total count with confluent method	Total count with confluent method
Incubation temperature	22°C	37°C
Standard:	MODIF. ISO 6222:1999	MODIF. ISO 6222:1999
Unit	CFU/ mL	CFU/ mL
Sample	Raw water sample taken from the tap	<10
	Sample taken from the tap treated with the device ELIMINATOR TAP-241	<10

Evaluation of results

Samples: Water sampled from location Fiddien Rabat, Malta (water from the state water supply network)

		Classic microbiological methods					Compliance
Criteria		<i>Escherichia coli</i>	Coliform bacteria	<i>Enterococcus sp.</i>	Total count at 22°C	Total count at 37°C	Drinking water policy
Unit		CFU/100 mL	CFU/100 mL	CFU/100 mL	CFU/mL	CFU/mL	/
Sample	Raw water sample taken from the tap	0	0	7	<10	<10	Does not comply
	Sample taken from the tap treated with the device ELIMINATOR TAP-241	0	0	0	<10	<10	Complies

Note

The criteria-limit values are summarised by:

Directive (EU) 2020/2184 of the European Parliament and of the Council of 16 December 2020 on the quality of water intended for human consumption

2.) Results of sample examination using classic microbiological methods

Samples: Water sampled from location Marsa, Malta (water from the state water supply network)

	Classical microbiological methods					
	Time period	29.6.2023 - 30.6.2023	29.6.2023 - 30.6.2023	29.6.2023 - 30.6.2023	29.6.2023 - 2.7.2023	29.6.2023 - 1.7.2023
	Test	<i>Escherichia coli</i>	Coliform bacteria	<i>Enterococcus sp.</i>	Total count	Total count
	Incubation temperature	37°C	37°C	37°C	22°C	37°C
	Standard:	ISO 9308-1	ISO 9308-1	ISO 7899-2:2000	ISO 6222:1999	ISO 6222:1999
	Unit	CFU/ 100 mL	CFU/ 100 mL	CFU/ 100 mL	CFU/ mL	CFU/ mL
	Sample	Raw water sample taken from the tap	0	0	0	<10
Sample taken from the tap treated with the device ELIMINATOR TAP-241		0	0	0	<10	<10

Classical microbiological methods with standard modification				
Time period		29.6.2023 – 2.7.2023	29.6.2023 – 1.7.2023	
Test		Total count with confluent method	Total count with confluent method	
Incubation temperature		22°C	37°C	
Standard:		MODIF. ISO 6222:1999	MODIF. ISO 6222:1999	
Unit		CFU/ mL	CFU/ mL	
Sample	Raw water sample taken from the tap		70	10
	Sample taken from the tap treated with the device ELIMINATOR TAP-241		<10	<10

Evaluation of results

Samples: Water sampled from location Marsa, Malta (water from the state water supply network)

		Classic microbiological methods					Compliance
Criteria		<i>Escherichia coli</i>	Coliform bacteria	<i>Enterococcus sp.</i>	Total count at 22°C	Total count at 37°C	Drinking water policy
Unit		CFU/100 mL	CFU/100 mL	CFU/100 mL	CFU/mL	CFU/mL	/
Sample	Raw water sample taken from the tap	0	0	0	<10	<10	Complies
	Sample taken from the tap treated with the device ELIMINATOR TAP-241	0	0	0	<10	<10	Complies

Note

The criteria-limit values are summarised by:

Directive (EU) 2020/2184 of the European Parliament and of the Council of 16 December 2020 on the quality of water intended for human consumption

Methods

1.) Classic microbiological methods

- a) ISO 9308-1:2014
Filtration of 100 mL water sample through filter with pore diameter 0,45 µm. Filter was transferred onto plate CompactDry EC. Sample was incubated at temperature $35 \pm 2^{\circ}\text{C}$, for time of 24 ± 2 hours.
- b) ISO 7899-2:2000
Filtration of 100 mL water sample through filter with pore diameter 0,45 µm. Filter was transferred onto plate CompactDry EC. Sample was incubated at temperature $35 \pm 2^{\circ}\text{C}$, for time of 24 ± 2 hours.
- c) ISO 6222:1999
1,0 mL of non-diluted water sample was transferred into sterile Petri Dish. Yeast Extract Agar was added into Petri Dish for preparation of Pour-Plate technique. Sample was incubated at temperature $35 \pm 2^{\circ}\text{C}$, for time of 44 ± 4 hours, and at temperature $22 \pm 2^{\circ}\text{C}$, for time of 68 ± 4 hours.
- d) MODIF. ISO 6222:1999
100 µL of non-diluted water sample was transferred onto R2A Agar plate and confluent technique of sample was prepared. Sample was incubated at temperature $35 \pm 2^{\circ}\text{C}$, for time of 44 ± 4 hours, and at temperature $22 \pm 2^{\circ}\text{C}$, for time of 68 ± 4 hours.

2.) Control

- a) Appropriate negative controls to check the sterility of the media were prepared for each of the methods.