

Certificate of Analysis

Laboratory Reference: 191021-156

Attention:	Richard Phillips	Final Report:	341616-0
Client:	ORAVIDA WATERS LIMITED	Report Issue Date:	14-Nov-2019
Address:	PO Box 106123, Auckland City, 1143	Received Date:	21-Oct-2019
Client Reference:	OWL Typical Analysis	Quote Reference :	10954
Purchase Order:	Not Available		

Sample Details

WATERS

Lab Sample ID:	191021-156-1
Client Sample ID:	
Sample Date/Time	16/10/2019
Description:	OWL Typical Analysis

Chemistry Detailed

Anions

Chloride	mg/L	0.494
Nitrate (as N)	mg/L	0.018
Nitrite (as N)	mg/L	0.018
Sulphate	mg/L	0.47

General Testing

Bicarbonate Alkalinity (as HCO ₃)	mg/L	41
Carbonate Alkalinity (as CO ₃)	mg/L	<1.0
Molybdate Reactive Silica (as SiO ₂)	mg/L	87
Nitrite (as N) + Nitrate (as N)	mg/L	0.036
pH (at room temp c. 20 °C)	pH unit	6.9
Total Alkalinity (as CaCO ₃)	mg/L	34
Total Dissolved Solids	mg/L	180

Metals

Total Metals by ICP-MS—Trace (Default Digest)

Calcium (Total)	mg/L	2.8
Magnesium (Total)	mg/L	1.6
Potassium (Total)	mg/L	2.6
Silicon (as Silica) (Total)	mg/L	78
Sodium (Total)	mg/L	12
Total Hardness (as CaCO ₃)	mg/L	14

Microbiology

Escherichia coli by MPN(Coilert-18)

Escherichia coli	MPN/100 mL	<1.0
Total Coliforms	MPN/100 mL	<1.0

Heterotrophic Plate Count by Pour Plate Method

HPC (22°C)	cfu/mL	<1.0
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Results marked with * are not accredited to International Accreditation New Zealand

Where samples have been supplied by the client they are tested as received. A dash indicates no test performed.

Reference Methods

The sample(s) referred to in this report were analysed by the following method(s)

Analyte	Method Reference	MDL	Samples	Location
Chemistry Detailed				
Anions				
Chloride	APHA (online edition) 4110 B	0.02 mg/L	All	Auckland
Nitrate (as N)	APHA (online edition) 4110 B	0.002 mg/L	All	Auckland
Nitrite (as N)	APHA (online edition) 4110 B	0.002 mg/L	All	Auckland
Sulphate	APHA (online edition) 4110 B	0.02 mg/L	All	Auckland

General Testing					
Bicarbonate Alkalinity (as HCO ₃) by Titration	APHA (online edition) 2320 B	1 mg/L	All	Auckland	
Carbonate Alkalinity (as CO ₃) by Titration	APHA (online edition) 2320 B	1 mg/L	All	Auckland	
Molybdate Reactive Silica (as SiO ₂) by Colorimetry/Discrete Analyser	APHA (online edition) 4500-SiO ₂ F	1 mg/L	All	Auckland	
Nitrite (as N) + Nitrate (as N)	Calculation	0.001 mg/L	All	Auckland	
pH (at room temp c. 20 °C) by Electrode	APHA (online edition) 4500-H B (Tested beyond 15 minute APHA holding time)	0.1 pH unit	All	Auckland	
Total Alkalinity (as CaCO ₃) by Titration	APHA (online edition) 2320 B	1 mg/L	All	Auckland	
Total Dissolved Solids by Gravimetry	APHA (online edition) 2540 C (Modified: Dried at 103 - 105 °C)	15 mg/L	All	Auckland	
Metals					
Total Metals by ICP-MS—Trace (Default Digest)					
Calcium (Total)	APHA (online edition) 3125 B by ICPMS	0.010 mg/L	All	Auckland	
Magnesium (Total)	APHA (online edition) 3125 B by ICPMS	0.001 mg/L	All	Auckland	
Potassium (Total)	APHA (online edition) 3125 B by ICPMS	0.05 mg/L	All	Auckland	
Silicon (as Silica) (Total)	APHA (online edition) 3125 B by ICPMS	0.1 mg/L	All	Auckland	
Sodium (Total)	APHA (online edition) 3125 B by ICPMS	0.1 mg/L	All	Auckland	
Total Hardness (as CaCO ₃)	APHA (online edition) 3125 B by ICPMS	0.03 mg/L	All	Auckland	
Microbiology					
Escherichia coli by MPN(Colilert-18)					
Escherichia coli	APHA (online edition) 9223 B Colilert Quantitray	1 MPN/100 mL	All	Auckland	
Total Coliforms	APHA (online edition) 9223 B Colilert Quantitray	1 MPN/100 mL	All	Auckland	
Heterotrophic Plate Count by Pour Plate Method					
HPC (22°C)	APHA (online edition) 9215 B	1 cfu/mL	All	Auckland	
Preparations					
Digest for Total Metals in Liquids	In House (4:1 Nitric:Hydrochloric Acid, 95°C 2 hours)		All	Auckland	
Glass Fibre Filtration (1.2 µm)	APHA (online edition) 2540 C (Filtration)		All	Auckland	
Membrane Filtration (0.45 µm)	APHA (online edition) 4500-P B (preliminary filtration)		All	Auckland	
<i>The method detection limit (MDL) listed is the limit attainable in a relatively clean matrix. If dilutions are required for analysis the detection limit may be higher. For more information please contact the Operations Manager.</i>					

Samples, with suitable preservation and stability of analytes, will be held by the laboratory for a period of two weeks after results have been reported, unless otherwise advised by the submitter.

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