



Term Contract for Provision of Sampling and Analyzing of Samples for Various Sewage Treatment Facilities in Urban Area, Lantau and Outlying Islands to the Drainage Service Department

Provision of Routine Marine Water Quality Monitoring Services Report for the Month of Apr 2022

Contract No. : DE/2020/02

Applicant : SEWAGE TREATMENT DIVISION 2
ELECTRICAL AND MECHANICAL BRANCH
DRAINAGE SERVICES DEPARTMENT

Address : STONECUTTERS ISLAND SEWAGE TREATMENT WORKS.,
NGONG SHUNG ROAD, NGONG SHUEN CHAU,
KOWLOON, HONG KONG

Application Number : LB005829(2)

Report Number : AB0009875(7)

Report Issued Date : 13 May 2022

For and on behalf of
CMA Industrial Development Foundation Limited

A handwritten signature in black ink, appearing to read "Lau Yan Kin".

Authorized Signature : _____

Lau Yan Kin
Senior Manager
Environmental Division

The conformity statement stated in Conclusion above is based on the decision rule agreed with applicant and listed in www.cmatesting.org/qac/statement-of-conformity.pdf.
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CMA Industrial Development Foundation Limited

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Term Contract for Provision of Sampling and Analyzing of Samples for Various Sewage Treatment Facilities in Urban Area, Lantau and Outlying Islands to the Drainage Services Department

EXECUTIVE SUMMARY

1. This is the water quality monitoring report prepared by CMA Testing for Contract No. DE/2020/02 “Term Contract for Provision of Sampling and Analysing of Samples for Various Sewage Treatment Facilities in Urban Area, Lantau and Outlying Islands to the Drainage Services Department”. This report documented the results and findings of Operation Phase Environmental Monitoring works conducted for Routine Marine Water Quality Monitoring (rMWQM) of Project.
2. In accordance with the Final EM&A Manual, environmental monitoring has been conducted in the reporting month with a Quarterly Basis for various parameters as summarized in **Table I**.

Table I Summary Table for Environmental Monitoring Works Conducted in the Reporting Month

Monitoring Parameters	Monitoring Date	Laboratory Testing Parameters
Marine Water Quality	22 Apr 2022	E.coli, Total Residual Chlorine (TRC), Chlorination by-products (CBPs) and Contaminants of Concern (COCs)



Term Contract for Provision of Sampling and Analyzing of Samples for Various Sewage Treatment Facilities in Urban Area, Lantau and Outlying Islands to the Drainage Services Department

1. INTRODUCTION

- 1.1. CMA Testing was commissioned by Drainage Services Department (DSD) to undertake the operation phase environmental monitoring for Advance Disinfection Facilities (ADF) at Stonecutters Island Sewage Treatment Works (SCISTW) (hereafter called the “the Services”).
- 1.2. The operation phase monitoring, which includes effluent quality monitoring, marine water quality monitoring and emergency discharge monitoring, is to monitor the effluent and marine water quality impact of ADF during its operation phase.
- 1.3. This is the water quality monitoring report prepared by CMA Testing that documented the results and findings of Operation Phase Water Quality Monitoring works conducted for Routine Marine Water Quality Monitoring (rMWQM) of Project.



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2. MARINE WATER QUALITY MONITORING

Monitoring Requirements

- 2.1. Monitoring was taken at three water depths, namely, 1m below water surface, mid-depth and 1m above sea bed, except where the water depth is less than 6m, in which case the mid-depth station may be omitted. If the water depth be less than 3m, only the mid-depth station will be monitored.
- 2.2. Six samples (replicates) at each monitoring stations were collected by collecting the same amount of water sample at each depth.
- 2.3. One grab sample was collected at each water depth for E.coli analysis.

Monitoring Locations

- 2.4. Six monitoring stations were designated for the marine water quality monitoring programme. The locations are summarized in Table 2.1 and shown on **Appendix I**.

Table 2.1 Proposed Marine Water Quality Monitoring Stations

Station	Description	Coordinates	
		Easting	Northing
1	Edge of Mixing Zone (northwest of effluent diffuser)	829762.00	819604.47
2	Edge of ZID (northwest of effluent diffuser)	830117.99	819251.93
3	Edge of ZID (southeast of effluent diffuser)	830186.21	819184.37
4	Edge of Mixing Zone (southeast of effluent diffuser)	830525.00	818848.87
SM6	Control Station	826179.81	805902.89
SM12	Control Station	819524.19	808420.40

Monitoring Schedule

- 2.5. The marine water quality monitoring was conducted coincide with effluent quality monitoring on monitoring date.

Monitoring Equipment

- 2.6. The equipment used in the marine water quality monitoring in the reporting month is summarized in Table 2.2. Copies of calibration certificates are shown in **Appendix II**.

Table 2.2 Marine Water Quality Monitoring Equipment

Equipment	Model and Make	Qty
Water Sampler	Kahlsico Water Sampler	1
Water Depth Detector	Garmin Striker 4 or equivalent	1
Positioning System	Global Positioning System (GPS)	1
Chlorine Meter	HACH Pocket Colorimeter II or equivalent	1
Turbidimeter	HACH 2100Q or equivalent	1
Multi-parameter Water Quality System	YSI Professional Plus (Pro Plus) or equivalent	1

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Monitoring Parameters and Frequency

- 2.7. Marine Water sampling on E.coli, Total Residual Chlorine (TRC), Chlorination By-Products (CBPs) and the Contaminants of Concern (COCs) shall be performed quarterly throughout the contract period.
- 2.8. The list of parameters to be analysed as well as the corresponding analytical methods and lowest reportable value are listed in Table 2.3

Table 2.3 Analytical Methods for Laboratory Analysis for Marine Water Samples

Parameters	Analytical Method	Lowest Reportable Value (µg/L)
TRC and Potential CBPs		
Total Residual Chlorine	APHA 23ed 4500 Cl G	10
Bromoform		0.1
Bromodichloromethane		0.1
Chloroform		0.1
Dibromochloromethane		5
Bromoacetic acid		2
Chloroacetic acid		2
Dibromoacetic acid		2
Dichloroacetic acid		2
Trichloroacetic acid		2
Bacteria		
E.coli	Environmental Monitoring Laboratory Test Method Manual TM09/EC/10/098 Issue 3, Environmental Protection Department, HK.	1 cfu/100ml
Contaminants of Concern (COCs)		
Methylene chloride		20
Carbon tetrachloride		0.5
1,1-dichloroethane		0.5
1,2-dichloroethane		0.5
1,1-dichloroethylene		0.5
1,2-dichloropropane		0.5
Tetrachloroethylene		0.5
1,1,1-trichloroethane		0.5
1,1,2-trichloroethane		0.5
Trichloroethylene		0.5
2-chlorophenol		0.5
2,4-dichlorophenol		0.5
p-chloro-m-cresol		0.5



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Term Contract for Provision of Sampling and Analyzing of Samples for Various Sewage Treatment Facilities in Urban Area, Lantau and Outlying Islands to the Drainage Services Department

Pentachlorophenol			0.5
2,4,6-trichlorophenol			0.5
Bis(2-chloroethoxy) methane			0.5
Chlorobenzene	Chlorinated Hydrocarbons & Organochlorine Pesticides	In house method	0.5
1,4-dichlorobenzene		TG-ENV-WW-78 (by Headspace GC/MSD)	0.5
Hexachlorobenzene			0.01
Hexachlorocyclopentadiene			2.5
Hexachloroethane		&	0.5
1,2,4-trichlorobenzene		In house method	0.5
Alpha-BHC		TG-ENV-WW-86 (by GC-MSD)	0.01
Beta-BHC			0.01
Gamma-BHC			0.01

3. RESULTS AND OBSERVATIONS

Weather and Sea Condition

- 3.1. The weather condition was Fine while the sea condition was moderate during the sampling period on the monitoring date

Marine Water Quality

- 3.2. The in-situ measurement results include dissolved oxygen, turbidity, salinity, pH and temperature of the marine water monitoring. Also, the results of marine water quality monitoring conducted on the monitoring date and QC report are shown in **Appendix II**.

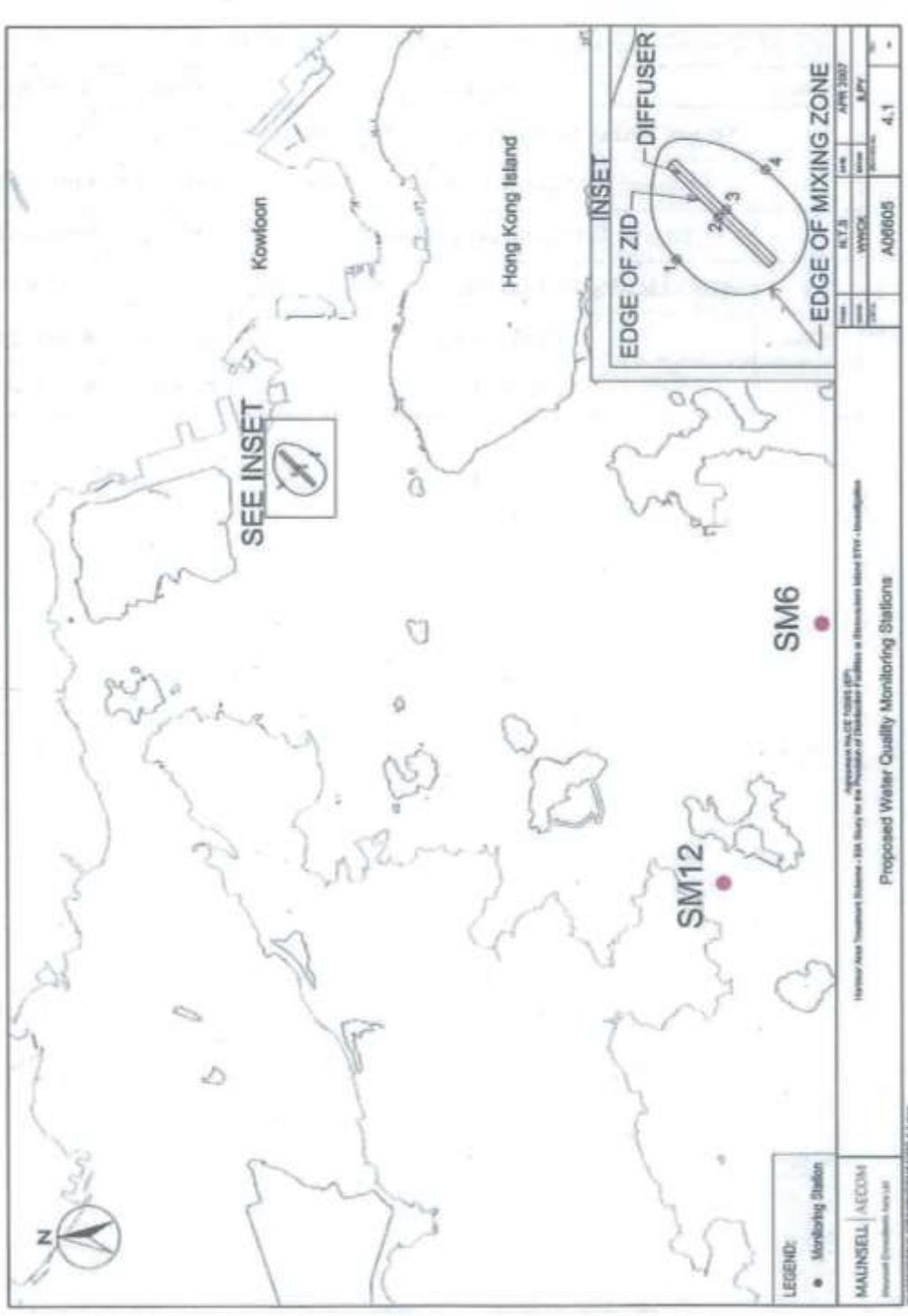


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Appendix I - Location of Monitoring Stations

CMA TESTING

Term Contract for Provision of Sampling and Analyzing of Samples for Various Sewage Treatment Facilities in Urban Area, Lantau and Outlying Islands to the Drainage Services Department





Term Contract for Provision of Sampling and Analyzing of Samples for Various Sewage Treatment Facilities in Urban Area, Lantau and Outlying Islands to the Drainage Services Department

Appendix II - Report for Laboratory Test(s)

TEST REPORT

Report No. : AB0009876(8) Date: 13 May 2022

Application No. : LB005829(2)

Applicant : SEWAGE TREATMENT DIVISION 2
ELECTRICAL AND MECHANICAL BRANCH
DRAINAGE SERVICES DEPARTMENT
STONECUTTERS ISLAND SEWAGE TREATMENT WORKS,
NGONG SHUNG ROAD, NGONG SHUEN CHAU,
KOWLOON, HONG KONG

Contract No. : DE/2020/02

Project Name : Term Contract for Provision of Sampling and Analyzing of Samples for Various Sewage Treatment Facilities in Urban Area, Lantau and Outlying Islands to the Drainage Services Department

Sample Description : Six (6) marine sampling point, Eighteen (18) marine water samples sampled by the staff of CMA Industrial Development Foundation Limited.

Samples were refrigerated during delivery.

Sample ID : Refer to Sample ID on page 4 to 10.

Sampling Location :

Station	Description	Coordinates	
		Easting	Northing
1	Edge of Mixing Zone (northwest of effluent diffuser)	829762.00	819604.47
2	Edge of ZID (northwest of effluent diffuser)	830117.99	819251.93
3	Edge of ZID (southeast of effluent diffuser)	830186.21	819184.37
4	Edge of Mixing Zone (southeast of effluent diffuser)	830525.00	818848.87
SM6	Control Station	826179.81	805902.89
SM12	Control Station	819524.19	808420.40

For and on behalf of
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Lau Yan Kin
Senior Manager
Environmental Division

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TEST REPORT

Report No. : AB0009876(8) Date: 13 May 2022

Application No. : LB005829(2)

Sampling Date : 22 Apr 2022

Date Received : 22 Apr 2022

Test Period : 22 Apr 2022 to 23 Apr 2022

Test Requested :
1. Temperature (on-site measurement)
2. pH (on-site measurement)
3. Salinity (on-site measurement)
4. Dissolved Oxygen (DO) (mg/L) (on-site measurement)
5. Dissolved Oxygen (DOS) (% saturation) (on-site measurement)
6. Turbidity (on-site measurement)
7. Total Residual Chlorine (on-site measurement)
8. E. coli count
9. Bromoform
10. Bromodichloromethane
11. Chloroform
12. Dibromochloromethane
13. Bromoacetic acid
14. Chlороacetic acid
15. Dibromoacetic acid
16. Dichloroacetic acid
17. Trichloroacetic acid
18. Methylene chloride
19. Carbon tetrachloride
20. 1,1-dichloroethane
21. 1,2-dichloroethane
22. 1,1-dichloroethylene
23. 1,2-dichloropropane
24. Tetrachloroethylene
25. 1,1,1-trichloroethane
26. 1,1,2-trichloroethane
27. Trichloroethylene
28. 2-chlorophenol
29. 2,4-dichlorophenol
30. p-chloro-m-cresol
31. Pentachlorophenol
32. 2,4,6-trichlorophenol
33. Bis(2-chloroethoxy) methane
34. Chlorobenzene
35. 1,4-dichlorobenzene
36. Hexachlorobenzene
37. Hexachlorocyclopentadiene
38. Hexachloroethane
39. 1,2,4-trichlorobenzene
40. Alpha-BHC
41. Beta-BHC
42. Gamma-BHC



TEST REPORT

Report No. : AB0009876(8) Date: 13 May 2022

Application No. : LB005829(2)

Test Method : 1-5. In house method (by multimeter)
6. APHA 23ed 2130 B
7. APHA 23ed 4500 Cl G
8. Environmental Monitoring Laboratory Test Method Manual
TM09/EC/10/098 Issue 3, Environmental Protection
Department, HK.
9-12. USEPA 8260B
13-17. In house method TG-ENV-WW-79 (by GC-MSD)
18-27. ISO 17943:2016 & USEPA 8260B
28-33. In house method TG-ENV-WW-80, 84 & 86 (by GC-MSD)
34-42. In house method TG-ENV-WW-78 (by Headspace GC-MSD) &
In house method TG-ENV-WW-86 (by GC-MSD)

Test Result : Refer to results on page 4 to 10.

TEST REPORT

Report No. : AB0009876(8)

Date: 13 May 2022

Application No. : LB005829(2)

Marine Water Quality

Sampling Date 22-Apr-2022

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	E.coli (CFU/100mL)	Temperature (°C)		Salinity (ppt)		pH		DO (mg/L)		DOS (%)		Turbidity (NTU)		TRC (mg/L)	
1	10:45 -10:50	9.6	1.0	86	22.5	22.5	30.7	30.7	9.0	9.0	6.9	6.9	94.5	94.5	2.3	2.3	0.02	0.02
			4.8	97	22.4	22.4	30.9	30.9	9.0	9.0	6.7	6.7	92.8	92.8	3.2	3.2	0.02	0.02
			8.6	110	22.4	22.4	31.1	31.1	9.0	9.0	6.9	6.9	95.5	95.5	2.9	2.9	0.02	0.02
2	10:52 - 10:57	9.8	1.0	180	22.5	22.5	30.5	30.5	8.9	8.9	7.2	7.2	98.9	98.9	2.2	2.2	0.01	0.01
			4.9	150	22.5	22.5	30.5	30.5	8.9	8.9	6.5	6.5	89.4	89.4	2.6	2.6	0.01	0.01
			8.8	160	22.5	22.5	30.6	30.6	8.9	8.9	6.1	6.1	84.0	84.0	2.7	2.7	0.02	0.02
3	10:59-11:04	9.7	1.0	75	22.6	22.6	30.4	30.4	8.9	8.9	7.1	7.1	97.7	97.7	2.8	2.8	0.02	0.02
			4.9	60	22.5	22.5	30.5	30.5	8.9	8.9	6.5	6.5	89.3	89.3	4.2	4.2	0.01	0.01
			8.7	83	22.5	22.5	30.5	30.5	8.9	8.9	6.5	6.5	89.5	89.5	2.4	2.4	0.02	0.02
4	11:06 - 11:11	9.6	1.0	120	22.9	22.9	29.6	29.6	9.0	9.0	7.1	7.1	98.1	98.1	3.8	3.8	0.02	0.02
			4.8	94	22.8	22.8	29.7	29.7	9.0	9.0	6.4	6.4	88.2	88.2	3.5	3.5	0.02	0.02
			8.6	79	22.6	22.6	30.4	30.4	9.0	9.0	5.7	5.7	77.9	77.9	3.0	3.0	0.02	0.02
SM6	08:53-08:56	15.3	1.0	49	22.4	22.4	30.6	30.6	9.0	9.0	6.4	6.4	84.4	84.4	2.6	2.6	0.02	0.02
			7.7	61	22.4	22.4	31.1	31.1	8.9	8.9	6.3	6.3	83.9	83.9	2.5	2.5	0.01	0.01
			14.3	27	22.2	22.2	31.5	31.5	8.9	8.9	6.3	6.3	83.2	83.2	2.3	2.3	0.02	0.02
SM12	08:11-08:56	9.8	1.0	53	22.4	22.4	30.6	30.6	9.0	9.0	6.4	6.4	84.0	84.0	2.6	2.6	0.02	0.02
			4.9	34	22.4	22.4	31.1	31.1	8.8	8.8	6.3	6.3	82.9	82.9	2.2	2.2	0.02	0.02
			8.8	66	22.2	22.2	31.7	31.7	8.9	8.9	6.2	6.2	83.7	83.7	2.2	2.2	0.02	0.02
			LRV	1	0.1		1		0.1		0.5 mg/L		-		1		0.01 mg/L	

TEST REPORT

Report No. : AB0009876(8)

Date: 13 May 2022

Application No. : LB005829(2)

Marine Water Quality

Sampling Date 22-Apr-2022

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	Bromoform (µg/L)		Bromodichloromethane (µg/L)		Chloroform (µg/L)		Dibromochloromethane (µg/L)		Bromacetic acid (µg/L)	
1	10:45 -10:50	9.6	1.0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
			4.8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
			8.6	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
2	10:52 - 10:57	9.8	1.0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
			4.9	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
			8.8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
3	10:59-11:04	9.7	1.0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
			4.9	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
			8.7	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
4	11:06 - 11:11	9.6	1.0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
			4.8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
			8.6	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
SM6	08:53-08:56	15.3	1.0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
			7.7	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
			14.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
SM12	08:11-08:56	9.8	1.0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
			4.9	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
			8.8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 5	< 5	< 2	< 2
			LRV	0.1		0.1		0.1		5	2		

TEST REPORT

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Marine Water Quality

Sampling Date 22-Apr-2022

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	Chloroacetic acid ($\mu\text{g/L}$)		Dibromoacetic acid ($\mu\text{g/L}$)		Dichloroacetic acid ($\mu\text{g/L}$)		Trichloroacetic acid ($\mu\text{g/L}$)	
				1.0	< 2	< 2	< 2	< 2	< 2	< 2	< 2
1	10:45 -10:50	9.6	1.0	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
			4.8	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
			8.6	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
2	10:52 - 10:57	9.8	1.0	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
			4.9	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
			8.8	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
3	10:59-11:04	9.7	1.0	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
			4.9	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
			8.7	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
4	11:06 - 11:11	9.6	1.0	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
			4.8	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
			8.6	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
SM6	08:53-08:56	15.3	1.0	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
			7.7	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
			14.3	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
SM12	08:11-08:56	9.8	1.0	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
			4.9	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
			8.8	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
			LRV	2		2		2		2	

TEST REPORT

Report No. : AB0009876(8)

Date: 13 May 2022

Application No. : LB005829(2)

Marine Water Quality

Sampling Date 22-Apr-2022

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	Methylene chloride (µg/L)	Carbon tetrachloride (µg/L)	1,1-dichloroethane (µg/L)	1,2-dichloroethane (µg/L)	1,1- dichloroethylene (µg/L)	1,2-dichloropropane (µg/L)
1	10:45 -10:50	9.6	1.0	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
			4.8	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
			8.6	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
2	10:52 - 10:57	9.8	1.0	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
			4.9	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
			8.8	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
3	10:59-11:04	9.7	1.0	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
			4.9	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
			8.7	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
4	11:06 - 11:11	9.6	1.0	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
			4.8	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
			8.6	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
SM6	08:53-08:56	15.3	1.0	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
			7.7	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
			14.3	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
SM12	08:11-08:56	9.8	1.0	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
			4.9	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
			8.8	< 20	< 20	< 0.5	< 0.5	< 0.5	< 0.5
			LRV	20	0.5	0.5	0.5	0.5	0.5

TEST REPORT

Report No. : AB0009876(8)

Date: 13 May 2022

Application No. : LB005829(2)

Marine Water Quality

Sampling Date 22-Apr-2022

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	Tetrachloroethylene (µg/L)	1,1,1-trichloroethane (µg/L)	1,1,2-trichloroethane (µg/L)	Trichloroethylene (µg/L)	2-chlorophenol (µg/L)	2,4-dichlorophenol (µg/L)
1	10:45 -10:50	9.6	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			4.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			8.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2	10:52 - 10:57	9.8	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			4.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			8.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
3	10:59-11:04	9.7	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			4.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			8.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
4	11:06 - 11:11	9.6	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			4.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			8.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
SM6	08:53-08:56	15.3	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			7.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			14.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
SM12	08:11-08:56	9.8	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			4.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			8.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			LRV	0.5	0.5	0.5	0.5	0.5	0.5

TEST REPORT

Report No. : AB0009876(8)

Date: 13 May 2022

Application No. : LB005829(2)

Marine Water Quality

Sampling Date 22-Apr-2022

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	p-chloro-m-cresol (µg/L)	Pentachlorophenol (µg/L)	2,4,6-trichlorophenol (µg/L)	Bis(2-chloroethoxy) methane (µg/L)	Chlorobenzene (µg/L)	1,4-dichlorobenzene (µg/L)
1	10:45 -10:50	9.6	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			4.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			8.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2	10:52 - 10:57	9.8	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			4.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			8.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
3	10:59-11:04	9.7	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			4.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			8.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
4	11:06 - 11:11	9.6	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			4.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			8.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
SM6	08:53-08:56	15.3	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			7.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			14.3	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
SM12	08:11-08:56	9.8	1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			4.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			8.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
			LRV	0.5	0.5	0.5	0.5	0.5	0.5

TEST REPORT

Report No. : AB0009876(8)

Date: 13 May 2022

Application No. : LB005829(2)

Marine Water Quality

Sampling Date 22-Apr-2022

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	Hexachlorobenzene ($\mu\text{g/L}$)		Hexachlorocyclopentadiene ($\mu\text{g/L}$)		Hexachloroethane ($\mu\text{g/L}$)		1,2,4-trichlorobenzene ($\mu\text{g/L}$)		Alpha-BHC ($\mu\text{g/L}$)		Beta-BHC ($\mu\text{g/L}$)		Gamma-BHC ($\mu\text{g/L}$)	
1	10:45 -10:50	9.6	1.0	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
			4.8	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
			8.6	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
2	10:52 - 10:57	9.8	1.0	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
			4.9	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
			8.8	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
3	10:59-11:04	9.7	1.0	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
			4.9	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
			8.7	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
4	11:06 - 11:11	9.6	1.0	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
			4.8	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
			8.6	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
SM6	08:53-08:56	15.3	1.0	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
			7.7	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
			14.3	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
SM12	08:11-08:56	9.8	1.0	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
			4.9	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
			8.8	< 0.01	< 0.01	< 2.5	< 2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
			LRV	0.01		2.5		0.5		0.5		0.01		0.01		0.01	



TEST REPORT

Report No. : AB0009876(8)

Date: 13 May 2022

Application No. : LB005829(2)

QC Report

Parameter	Method Blank	Acceptance Criteria	QC Recovery	Acceptance Criteria	Spike Recovery	Acceptance Criteria	Duplicate (RPD)	Acceptance Criteria
	(µg/L)	(µg/L)	(%)	(%)	(%)	(%)	(%)	(%)
Bromoform	<0.02	<0.02	92	80-120	99	70-130	12	≤20
Bromodichloromethane	<0.02	<0.02	96	80-120	89	70-130	9	≤20
Chloroform	<0.02	<0.02	90	80-120	92	70-130	15	≤20
Dibromochloromethane	<1	<1	113	80-120	106	70-130	10	≤20
Bromoacetic acid	<0.4	<0.4	109	80-120	101	70-130	11	≤20
Chloroacetic acid	<0.4	<0.4	101	80-120	94	70-130	16	≤20
Dibromoacetic acid	<0.4	<0.4	105	80-120	103	70-130	6	≤20
Dichloroacetic acid	<0.4	<0.4	98	80-120	92	70-130	8	≤20
Trichloroacetic acid	<0.4	<0.4	112	80-120	107	70-130	8	≤20



TEST REPORT

Report No. : AB0009876(8)

Date: 13 May 2022

Application No. : LB005829(2)

QC Report

Parameter	Method Blank	Acceptance Criteria	QC Recovery	Acceptance Criteria	Spike Recovery	Acceptance Criteria	Duplicate (RPD)	Acceptance Criteria
	($\mu\text{g/L}$)	($\mu\text{g/L}$)	(%)	(%)	(%)	(%)	(%)	(%)
Methylene chloride	<4	<4	91	80-120	95	70-130	15	≤ 20
Carbon tetrachloride	<0.1	<0.1	98	80-120	103	70-130	11	≤ 20
1,1-dichloroethane	<0.1	<0.1	113	80-120	115	70-130	8	≤ 20
1,2-dichloroethane	<0.1	<0.1	107	80-120	101	70-130	5	≤ 20
1,1-dichloroethylene	<0.1	<0.1	96	80-120	100	70-130	12	≤ 20
1,2-dichloropropane	<0.1	<0.1	104	80-120	110	70-130	14	≤ 20
Tetrachloroethylene	<0.1	<0.1	111	80-120	99	70-130	10	≤ 20
1,1,1-trichloroethane	<0.1	<0.1	115	80-120	105	70-130	6	≤ 20
1,1,2-trichloroethane	<0.1	<0.1	110	80-120	103	70-130	9	≤ 20
Trichloroethylene	<0.1	<0.1	107	80-120	98	70-130	13	≤ 20
2-chlorophenol	<0.1	<0.1	99	80-120	95	70-130	11	≤ 20
2,4-dichlorophenol	<0.1	<0.1	102	80-120	96	70-130	14	≤ 20
p-chloro-m-cresol	<0.1	<0.1	103	80-120	98	70-130	16	≤ 20
Pentachlorophenol	<0.1	<0.1	109	80-120	100	70-130	10	≤ 20
2,4,6-trichlorophenol	<0.1	<0.1	96	80-120	102	70-130	8	≤ 20
Bis(2-chloroethoxy) methane	<0.1	<0.1	105	80-120	109	70-130	12	≤ 20
Chlorobenzene	<0.1	<0.1	114	80-120	107	70-130	4	≤ 20
1,4-dichlorobenzene	<0.1	<0.1	101	80-120	96	70-130	10	≤ 20
Hexachlorobenzene	<0.005	<0.005	95	80-120	103	70-130	3	≤ 20
Hexachlorocyclopentadiene	<0.5	<0.5	113	80-120	107	70-130	5	≤ 20
Hexachloroethane	<0.1	<0.1	100	80-120	95	70-130	11	≤ 20
1,2,4-trichlorobenzene	<0.1	<0.1	97	80-120	92	70-130	15	≤ 20
Alpha-BHC	<0.005	<0.005	89	80-120	87	70-130	10	≤ 20
Beta-BHC	<0.005	<0.005	91	80-120	97	70-130	8	≤ 20
Gamma-BHC	<0.005	<0.005	94	80-120	89	70-130	5	≤ 20

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CMA Industrial Development Foundation Limited

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.

Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatesting.org Web Site: <http://www.cmatesting.org>

TEST REPORT

Report No. : AB0009876(8)

Date: 13 May 2022

Application No. : LB005829(2)

Calibration Certificate



Cal Lab Limited 校正實驗室有限公司
Room 2103, Technology Plaza, 29-35 Sha Tsui Road,
Tsuen Wan, NT, Hong Kong
Tel: +852 25680106 Email: info@callab.com.hk
Fax: +852 30116194 Website: www.callab.com.hk

Calibration Certificate No.: CC0752203

Customer Information

Customer: CMA Testing and Certification Laboratories
Address: Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung Street, Fo Tan, Shatin, NT, Hong Kong.

Equipment Identification

Equipment Description	Manufacturer	Model No.	Serial No.	Assigned equipment No.:
Multiparameter Instrument	YSI	Professional Plus	Meter: 17H105750	N/A

Certificate Information

Date of Receipt:	3 March 2022	Calibration Condition:	18-25°C, <75%RH
Date of Calibration:	4 March 2022	Adjustment:	N/A
Due Date of Calibration:	4 June 2022	Appearance:	Good
Calibration Procedure:	APHA 21e 4500-H B, APHA 21e 4500-O G, APHA 21e 2510 B, JJG 130-2011, APHA 21e 2520 B, APHA 21e 2580 B	Remark:	N/A

Note1: The estimated expanded uncertainties have been calculated in "Evaluation and expression of uncertainties in measurement" and give an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.
Note2: The standard(s) and instrument used in the calibration are traceable to national or international recognised standard and are calibrated on a schedule to maintain the accuracy and good condition.
Note3: The result reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long term stability of the instrument.
Note4: The result shown in this calibration certificate relate only to the item calibrated, and the result only applies to the calibration item as received.

Approved By:

Sherry Cheung

Company Chop:



Certificate Issue Date: 8 March 2022

CC0752203

Page 1 of 2

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2. The certificate is issued subject to the latest Terms and Conditions, available at our web site

TEST REPORT

Report No. : AB0009876(8)

Date: 13 May 2022

Application No. : LB005829(2)



Cal Lab Limited 校正實驗室有限公司

Room 2103, Technology Plaza, 29-35 Sha Tsui Road,
Tsuen Wan, NT, Hong Kong
Tel: +852 25680106 Email: info@callab.com.hk
Fax: +852 30116194 Website: www.callab.com.hk

Result of Calibration

a) Temperature

Reference reading (°C)	Display Reading (°C)	Error of indication (°C)
14.84	15.0	0.2
24.89	25.1	0.2
34.86	35.0	0.1

b) Dissolved Oxygen

Reference reading (mg/L)	Display Reading (mg/L)	Error of indication (mg/L)
0.00	0.00	0.00
4.01	3.99	-0.02
8.05	8.08	0.03

c) Conductivity at 25°C

Reference reading (µS/cm)	Display Reading (µS/cm)	Error of indication (%)
147.3	138.5	-6.0
1412	1505	6.6
12845	13243	3.1
111311	114310	2.7

d) Salinity

Reference reading (ppt)	Display Reading (ppt)	Error of indication (%)
10	10.24	2.4
20	19.86	-0.7
30	30.14	0.5

e) Oxidation-Reduction Potential (ORP)

Reference reading (mV)	Display Reading (mV)	Error of indication (mV)
+230	+228	-2

f) pH at 25°C

Reference reading	Display Reading	Error of indication
4.00	4.08	0.08
6.85	6.89	0.04
9.19	9.23	0.04
10.02	10.05	0.03

*** End of Certificate ***

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CC0752203

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TEST REPORT

Report No. : AB0009876(8)

Date: 13 May 2022

Application No. : LB005829(2)



Cal Lab Limited 校正實驗室有限公司

Room 2103, Technology Plaza, 29-35 Sha Tsui Road,
Tsuen Wan, NT, Hong Kong
Tel: +852 25680106 Email: info@callab.com.hk
Fax: +852 30116194 Website: www.callab.com.hk

Calibration Certificate No.: CC0282204(1)

Customer Information

Customer: CMA Testing and Certification Laboratories
Address: Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung Street, Fo Tan, Shatin, NT, Hong Kong

Equipment Identification

Equipment Description	Manufacturer	Model No.	Serial No.	Assigned equipment No.:
Portable Turbidimeter	Hach	2100Q	17070C059801	N/A

Certificate Information

Date of Receipt:	31 March 2022	Calibration Condition:	18-25°C, <75%RH
Date of Calibration:	1 April 2022	Adjustment:	N/A
Due Date of Calibration:	1 July 2022	Appearance:	Good
Calibration Procedure:	APHA 21e 2130B	Remark:	N/A

Result of Calibration

Turbidity

Reference reading (NTU)	Display Reading (NTU)	Error of indication (%)
Blank	0.00	0.0
10	9.93	-0.7
20	19.9	-0.5
100	104	4.0
800	803	0.4

- Note1: The estimated expanded uncertainties have been calculated in "Evaluation and expression of uncertainty in measurement" and give an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.
Note2: The standard (s) and instrument used in the calibration are traceable to national or international recognised standard and are calibrated on a schedule to maintain the accuracy and good condition.
Note3: The result reported in this certificate refer to the condition of the instrument at the date of calibration and carry no implication regarding the long term stability of the instrument.
Note4: The result shown in this calibration certificate relate only to the item calibrated, and the result only applies to the calibration item as received.

Approved By:

Sherry Cheung

Company Chop:



Certificate Issue Date: 4 April 2022

CC0282204-01

*** End of Certificate ***

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CC0282204(1)
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TEST REPORT

Report No. : AB0009876(8)

Date: 13 May 2022

Application No. : LB005829(2)

<u>TEST REPORT</u>		
Report No.	: AB0019810(8)	Date : 11 May 2022
Application No.	: LA031475(9)	
Applicant	CMA INDUSTRIAL DEVELOPMENT FOUNDATION LIMITED ROOM 1302, YAN HING CENTRE, 9-13 WONG CHUK YEUNG STREET, FO TAN, SHATIN, N.T., HONG KONG.	
Instrument	HACH Portable Colorimeter (DR300)	
Serial No.	19030A000277	
Date Received	18 Mar 2022.	
Test Period	18 Mar 2022 to 21 Mar 2022.	
Date of next checking	17 Jun 2022	
Test Method	APHA 23e 4500Cl-G	
Test Result	Refer to the results on page 2.	

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature : _____ 
Lau Yan Kim
Environmental Testing
Approved Signature

Page 1 of 2

The confidentiality statement stated in Conclusion above is based on the decision made agreed with applicant and listed in www.cmatesting.org.hk/statement-of-confidentiality.pdf.
This document is issued subject to the latest CMA Testing General Terms and Conditions of Testing and Inspection Services, available on request or accessible at website www.cmatesting.org.hk.
This document shall not be reproduced except in full without express approval by CMA Testing. The results apply to the sample as received unless otherwise specified. The observations and test results in this Report are relevant only to the sample tested.

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatesting.org Web Site: <http://www.cmatesting.org>



TEST REPORT

Report No. : AB0009876(8)

Date: 13 May 2022

Application No. : LB005829(2)

The logo for CMA TESTING, featuring the letters 'CMA' in a large, bold, blue font above the word 'TESTING' in a smaller, blue font.			
<u>TEST REPORT</u>			
Report No.	AB0019810(8)	Date : 11 May 2022	
Application No.	LA031475(9)		
Test Result	:		
Test Item	Reference reading (mg/L)	Display Reading (mg/L)	Error of indication (%)
Chlorine	1.00	1.02	2

***** End of Report *****

Page 2 of 2

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.
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***** End of Report *****

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CMA Industrial Development Foundation Limited

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