



**TEST REPORT**

Sample Number : SN-001/22-3626  
Report Number : AISL-RP-22-5346  
Report Date : 11/03/2022

Customer	Name	: Crystalline Cleaning & Environmental Services
	Address and Location	: Abu Dhabi, UAE
Project No	: Not specified	
Project Name	: Not specified	
Project Location	: Zayed University	
Client	: Serco Middle East	
Sample Description	: Cooling Tower Water	
Sampling Method	: APHA 9060 A 23rd Edition. 2017	Sampled By : AISL Rep
Sample Delivered By	: AISL Rep	Client Ref.No : Not specified
Date of Analysis	: 06/03/2022~ 09/03/2022	Test Conducted By : JUD
Brand	: Not specified	Sampling Date/Time : 05/03/2022 02:30 PM
Origin	: DCP 01	Receiving Date/Time : 05/03/2022 05:00 PM
Net wt./volume per unit	: 500 ml	Production Date : Not specified
No. of Unit	: 01	Expiry Date : Not specified
Packaging Type	: Sterile Bottle	Condition of Sample °C : 12.2
Physical Observations	: Satisfactory	

**TEST RESULTS**

**MICROBIOLOGICAL ANALYSIS**

PARAMETERS	TEST METHODS	UNITS	RESULTS	SPECIFICATIONS
E. coli	APHA AWWA 23rd Ed.2017, 9222B&H	CFU/100ml	Absent	-
Fecal Coliforms	APHA AWWA 23rd Ed. 2017, 9222D	CFU/100ml	Absent	-
Heterotrophic Plate Count	APHA AWWA 23rd Ed. 2017, 9215B	CFU/ml	97	10000
Pseudomonas aeruginosa	APHA AWWA 23rd Ed. 2017, 9213 E	CFU/100ml	Absent	-
Total Coliforms	APHA AWWA 23rd Ed. 2017, 9222B	CFU/100ml	Absent	-

Remarks : None  
Test Method Deviation : None  
Reference Specification : DM-PH&SD, Rev No # 2,6/2010.



Approved by Arun Bahulayan  
Section Head - Microbiology

For Microbiology Parameter Results "<" symbol is considered as "Not Detected"

(-) Denotes no limit available

If sampled by client, details of sampling which may affect the accuracy of the test result were not provided.

This report relates only to the sample tested and shall only be reproduced in full and with the written approval of Aman integrated solutions LLC.

AISL/MB/RP-06, Issue No/04.07.2021, Rev No:00

-End Of Report-



**TEST REPORT**

Sample Number : SN-001/22-3627  
Report Number : AISL-RP-22-5348  
Report Date : 11/03/2022

Customer	Name	: Crystalline Cleaning & Environmental Services
	Address and Location	: Abu Dhabi, UAE
Project No	: Not specified	
Project Name	: Not specified	
Project Location	: Zayed University	
Client	: Serco Middle East	
Sample Description	: Cooling Tower Water	
Sampling Method	: APHA 9060 A 23rd Edition. 2017	Sampled By : AISL Rep
Sample Delivered By	: AISL Rep	Client Ref.No : Not specified
Date of Analysis	: 06/03/2022~ 09/03/2022	Test Conducted By : JUD
Brand	: Not specified	Sampling Date/Time : 05/03/2022 02:30 PM
Origin	: DCP 02	Receiving Date/Time : 05/03/2022 05:00 PM
Net wt./volume per unit	: 500 ml	Production Date : Not specified
No. of Unit	: 01	Expiry Date : Not specified
Packaging Type	: Sterile Bottle	Condition of Sample °C : 11.5
Physical Observations	: Satisfactory	

**TEST RESULTS**

**MICROBIOLOGICAL ANALYSIS**

PARAMETERS	TEST METHODS	UNITS	RESULTS	SPECIFICATIONS
E. coli	APHA AWWA 23rd Ed.2017, 9222B&H	CFU/100ml	Absent	-
Fecal Coliforms	APHA AWWA 23rd Ed. 2017, 9222D	CFU/100ml	Absent	-
Heterotrophic Plate Count	APHA AWWA 23rd Ed. 2017, 9215B	CFU/ml	104	10000
Pseudomonas aeruginosa	APHA AWWA 23rd Ed. 2017, 9213 E	CFU/100ml	Absent	-
Total Coliforms	APHA AWWA 23rd Ed. 2017, 9222B	CFU/100ml	Absent	-

Remarks : None  
Test Method Deviation : None  
Reference Specification : DM-PH&SD, Rev No # 2,6/2010.



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Section Head - Microbiology

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-End Of Report-



**TEST REPORT**

Sample Number : SN-001/22-3626  
Report Number : AISL-RP-22-5345  
Report Date : 16/03/2022

Customer	Name	: Crystalline Cleaning & Environmental Services		
	Address and Location	: Abu Dhabi, UAE		
Project No	: Not specified			
Project Name	: Not specified			
Project Location	: Zayed University			
Client	: Serco Middle East			
Sample Description	: Cooling Tower Water			
Sampling Method	: BS7592:2008	Sampled By	: AISL Rep	
Sample Delivered By	: AISL Rep	Client Ref.No	: Not specified	
Date of Analysis	: 06/03/2022~ 16/03/2022	Test Conducted By	: JUD	
Brand	: Not specified	Sampling Date/Time	: 05/03/2022 02:30 PM	
Origin	: DCP 01	Receiving Date/Time	: 05/03/2022 05:00 PM	
Net wt./volume per unit	: 1000 ml	Production Date	: Not specified	
No. of Unit	: 01	Expiry Date	: Not specified	
Packaging Type	: Sterile Bottle	Condition of Sample °C	: 12.2	
Physical Observations	: Satisfactory			

**TEST RESULTS**

**LEGIONELLA ANALYSIS**

PARAMETERS	TEST METHODS	UNITS	RESULTS	SPECIFICATIONS
Legionella				
Legionella Spp	ISO 11731 - 2017	CFU/l	Absent	1000
Legionella pneumophila Sero group-1			Absent	
Legionella pneumophila Sero group-2-15			Absent	

Remarks : None, Matrix B Procedures 8,9 &10: Medium C, GVPC.  
Test Method Deviation : None  
Reference Specification : DM-PH&SD, Rev No # 2,6/2010.



  
Approved by Arun Bahulayan  
Section Head - Microbiology

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-End Of Report-



**TEST REPORT**

Sample Number : SN-001/22-3627  
Report Number : AISL-RP-22-5347  
Report Date : 16/03/2022

Customer	Name : Crystalline Cleaning & Environmental Services		
	Address and Location : Abu Dhabi, UAE		
Project No	: Not specified		
Project Name	: Not specified		
Project Location	: Zayed University		
Client	: Serco Middle East		
Sample Description	: Cooling Tower Water		
Sampling Method	: BS7592:2008	Sampled By	: AISL Rep
Sample Delivered By	: AISL Rep	Client Ref.No	: Not specified
Date of Analysis	: 06/03/2022~ 16/03/2022	Test Conducted By	: JUD
Brand	: Not specified	Sampling Date/Time	: 05/03/2022 02:30 PM
Origin	: DCP 02	Receiving Date/Time	: 05/03/2022 05:00 PM
Net wt./volume per unit	: 1000 ml	Production Date	: Not specified
No. of Unit	: 01	Expiry Date	: Not specified
Packaging Type	: Sterile Bottle	Condition of Sample °C	: 11.5
Physical Observations	: Satisfactory		

**TEST RESULTS**

**LEGIONELLA ANALYSIS**

PARAMETERS	TEST METHODS	UNITS	RESULTS	SPECIFICATIONS
Legionella				
Legionella Spp	ISO 11731 - 2017	CFU/l	Absent	1000
Legionella pneumophila Sero group-1			Absent	
Legionella pneumophila Sero group-2-15			Absent	

Remarks : None, Matrix B Procedures 8,9 &10: Medium C, GVPC.  
Test Method Deviation : None  
Reference Specification : DM-PH&SD, Rev No # 2,6/2010.



Approved by   
Section Head - Microbiology

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-End Of Report-

## CONSULTING SERVICE REPORT

Client: Serco Facility Management

Project: Zayed University, Abu Dhabi

Sampling Location: Zayed University, Abu Dhabi

Date: 05 -03- 2022

Sampling Point: DCP 1

Sampled By: Crystalline Representative

### COOLING TOWER WATER ANALYSIS

Test	Control Limits	Cooling Tower # 01
pH at 25°C	8.5 - 9.5	8.78
Conductivity at 25°C, µs/cm	1500 Max	970
Total Dissolved Solids (TDS)	1000 Max	630
Calcium Hardness, ppm as CaCO <sub>3</sub>	200 - 350	186
Chlorides (Cl <sup>-</sup> ), mg/l	200 Max	80
Total Iron, ppm as Fe	0 - 2.0	0.21
<b>Treatment Residuals</b>		
Dipslide	< 10 <sup>3</sup>	<10 <sup>1</sup>
Phosphate/Phosphonate	4 - 6	4.7
Free Residual Chlorine as Cl	0.2 - 0.5	Nil
Cyanuric Acid	---	---

All test results expressed in parts per million (ppm) as CaCO<sub>3</sub> except pH and conductivity (µmhos).

COMMENTS	ACTION
All Parameters are within in control limit	No action recommended

"Certified that the Water Analysis Results has been tested \* in accordance with the Standard Method, APHA-AWWA-WPCF,"

Reported By:

  
Murugaraaj  
Service Engineer



END OF REPORT

## CONSULTING SERVICE REPORT

Client: Serco Facility Management

Project: Zayed University, Abu Dhabi

Sampling Location: Zayed University, Abu Dhabi

Date: 05 -03- 2022

Sampling Point: DCP 2

Sampled By: Crystalline Representative

### COOLING TOWER WATER ANALYSIS

Test	Control Limits	Cooling Tower # 02
pH at 25°C	8.5 - 9.5	9.44
Conductivity at 25°C, µs/cm	1500 Max	886
Total Dissolved Solids (TDS)	1000 Max	575
Calcium Hardness, ppm as CaCO <sub>3</sub>	200 - 350	168
Chlorides (Cl <sup>-</sup> ), mg/l	200 Max	84
Total Iron, ppm as Fe	0 - 2.0	0.27
<b>Treatment Residuals</b>		
Dipslide	< 10 <sup>3</sup>	<10 <sup>1</sup>
Phosphate/Phosphonate	4 - 6	4.8
Free Residual Chlorine as Cl	0.2 - 0.5	Nil
Cyanuric Acid	---	---

All test results expressed in parts per million (ppm) as CaCO<sub>3</sub> except pH and conductivity (µmhos).

COMMENTS	ACTION
All Parameters are within in control limit	No action recommended

"Certified that the Water Analysis Results has been tested \* in accordance with the Standard Method, APHA-AWWA-WPCF,"

Reported By:

  
Murugaraaj  
Service Engineer



END OF REPORT