

Annex F4

# Calibration Certificates for Effluent Quality Monitoring Equipment



## REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR IVAN LEUNG	WORK ORDER:	HK2212038
CLIENT:	ALS TECHNICHEM (HK) PTY LTD		
ADDRESS:	11/F., CHUNG SHUN KNITTING CENTRE, 1-3 WING YIP STREET, KWAI CHUNG, N.T.	SUB-BATCH:	0
		LABORATORY:	HONG KONG
		DATE RECEIVED:	06-Apr-2022
		DATE OF ISSUE:	14-Apr-2022

### SPECIFIC COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client. The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principle as practised by the laboratory or quoted from relevant international standards.

The validity of equipment/ meter performance only applies to the result(s) stated in the report.

Equipment Type:	Multifunctional Meter
Service Nature:	Performance Check
Scope:	Conductivity, Dissolved Oxygen, pH Value, Redox Potential and Temperature
Brand Name/ Model No.:	[LUTRON]/ [WA-2017SD]
Serial No./ Equipment No.:	[T.016811]/ [HK2009]
Date of Calibration:	14-April-2022

### GENERAL COMMENTS

This report superseded any previous report(s) with same work order number.

Ms. Lin Wai Yu, Iris  
Assistant Manager - Inorganics

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# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



**WORK ORDER:** HK2212038  
**SUB-BATCH:** 0  
**DATE OF ISSUE:** 14-Apr-2022  
**CLIENT:** ALS TECHNICHEM (HK) PTY LTD

**Equipment Type:** Multifunctional Meter  
**Brand Name/ Model No.:** [LUTRON]/ [WA-2017SD]  
**Serial No./ Equipment No.:** [T.016811]/ [HK2009]  
**Date of Calibration:** 14-April-2022      **Date of Next Calibration:** 14-July-2022

**PARAMETERS:**

Conductivity      Method Ref: APHA (21st edition), 2510B

Expected Reading (µS/cm)	Displayed Reading (µS/cm)	Tolerance (%)
146.9	144.1	-1.9
6667	6560	-1.6
12890	12270	-4.8
58670	55800	-4.9
Tolerance Limit (%)		±10.0

Dissolved Oxygen      Method Ref: APHA (21st edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.29	3.1	-0.19
5.80	5.6	-0.20
8.30	8.2	-0.10
Tolerance Limit (mg/L)		±0.20

pH Value      Method Ref: APHA (21st edition), 4500H: B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.04	+0.04
7.0	7.08	+0.08
10.0	9.99	-0.01
Tolerance Limit (pH unit)		±0.20

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris  
 Assistant Manager - Inorganic

# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: **HK2212038**  
 SUB-BATCH: **0**  
 DATE OF ISSUE: **14-Apr-2022**  
 CLIENT: **ALS TECHNICHEM (HK) PTY LTD**

Equipment Type: **Multifunctional Meter**  
 Brand Name/ Model No.: **[LUTRON]/ [WA-2017SD]**  
 Serial No./ Equipment No.: **[T.016811]/ [HK2009]**  
 Date of Calibration: **14-April-2022**                      Date of Next Calibration: **14-July-2022**

**PARAMETERS:**

Redox Potential                      Method Ref: APHA (21st edition), 2580B  
    Method Ref: Orion Research Instruction Manual and the Laboratory Manual  
    the Environmental of Water, Wastewater and Soil (2nd edition), Rump & Krist (1992)

Expected Reading (mV)	Displayed Reading (mV)	Difference of A and B (mV)
<b>Solution A (~234mV)</b>	<b>230</b>	
<b>Solution B (~300mV)</b>	<b>301</b>	<b>+71.0</b>
	<b>Tolerance Limit (mV)</b>	<b>&gt;66</b>

Temperature                              Method Ref: Section 6 of International Accreditation New Zealand Technical  
    Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
<b>7.0</b>	<b>7.4</b>	<b>+0.4</b>
<b>22.0</b>	<b>22.2</b>	<b>+0.2</b>
<b>39.0</b>	<b>38.9</b>	<b>-0.1</b>
	<b>Tolerance Limit (°C)</b>	<b>±2.0</b>

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

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 Ms. Lin Wai Yu, Iris  
 Assistant Manager - Inorganic



## REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR IVAN LEUNG	WORK ORDER:	HK2225127
CLIENT:	ALS TECHNICHEM (HK) PTY LTD		
ADDRESS:	11/F., CHUNG SHUN KNITTING CENTRE, 1-3 WING YIP STREET, KWAI CHUNG, N.T.	SUB-BATCH:	0
		LABORATORY:	HONG KONG
		DATE RECEIVED:	04-Jul-2022
		DATE OF ISSUE:	06-Jul-2022

### SPECIFIC COMMENTS

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client. The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principle as practised by the laboratory or quoted from relevant international standards.

The validity of equipment/ meter performance only applies to the result(s) stated in the report.

Equipment Type:	pH meter
Service Nature:	Performance Check
Scope:	pH Value and Temperature
Brand Name/ Model No.:	[TOA]/ [HM-30P]
Serial No./ Equipment No.:	[790332]/ [HK1383]
Date of Calibration:	05-July-2022

### GENERAL COMMENTS

This report superseded any previous report(s) with same work order number.

Mr Chan Siu Ming, Vico  
Manager - Inorganics

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# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2225127  
SUB-BATCH: 0  
DATE OF ISSUE: 06-Jul-2022  
CLIENT: ALS TECHNICHEM (HK) PTY LTD

Equipment Type: pH meter  
Brand Name/  
Model No.: [TOA]/ [HM-30P]  
Serial No./  
Equipment No.: [790332]/ [HK1383]  
Date of Calibration: 05-July-2022

Date of Next Calibration: 05-October-2022

## PARAMETERS:

pH Value Method Ref: APHA (21st edition), 4500H: B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.03	+0.03
7.0	6.89	-0.11
10.0	10.04	+0.04
	Tolerance Limit (pH unit)	±0.20

Temperature Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
7.5	7.5	+0.0
22.5	21.8	-0.7
38.0	37.8	-0.2
	Tolerance Limit (°C)	±2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr Chan Siu Ming, Vico  
Manager - Inorganics