



Performance Check of Turbidity Meter

Equipment Ref. No. : ET/0505/010 Manufacturer : HACH

Model No. : 2100Q Serial No. : 11110 C 014260

Date of Calibration : 07/01/2014 Due Date : 06/04/2014

Gelex Vial Std	Theoretical Value (NTU)	Measured Value (NTU)	Difference %
0-10 NTU	5	5.11	2.18
10-100 NTU	50	51.1	2.18
100-1000 NTU	550	568	3.22

Acceptance Criteria

Difference : -5 % to 5%

The turbidity meter complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use. Measurements are traceable to national standards.

Checked by :

Approved by :



Internal Calibration Report of Dissolved Oxygen Meter

Equipment Ref. No. : <u>ET/EW/008/006</u>	Manufacturer : <u>YSI</u>
Model No. : <u>Pro 2030</u>	Serial No. : <u>12A 100554</u>
Date of Calibration : <u>19/12/2013</u>	Calibration Due Date : 18/03/2013 <u>18/03/2014</u> <i>As 19/12/2013</i>

Temperature Verification

Ref. No. of Reference Thermometer : ET/0521/008

Ref. No. of Water Bath : ---

		Temperature (°C)		
Reference Thermometer reading	Measured	19.9	Corrected	19.6
DO Meter reading	Measured	19.4	Difference	0.2

Standardization of sodium thiosulphate ($\text{Na}_2\text{S}_2\text{O}_3$) solution

Reagent No. of $\text{Na}_2\text{S}_2\text{O}_3$ titrant	CPE/012/4.5/001/8	Reagent No. of 0.025N $\text{K}_2\text{Cr}_2\text{O}_7$	CPE/012/4.4/001/23
		Trial 1	Trial 2
Initial Vol. of $\text{Na}_2\text{S}_2\text{O}_3$ (ml)		1.00	12.00
Final Vol. of $\text{Na}_2\text{S}_2\text{O}_3$ (ml)		11.55	22.50
Vol. of $\text{Na}_2\text{S}_2\text{O}_3$ used (ml)		10.55	10.50
Normality of $\text{Na}_2\text{S}_2\text{O}_3$ solution (N)		0.02370	0.02381
Average Normality (N) of $\text{Na}_2\text{S}_2\text{O}_3$ solution (N)		0.02376	
Acceptance criteria, Deviation		Less than $\pm 0.001\text{N}$	

Calculation: Normality of $\text{Na}_2\text{S}_2\text{O}_3$, $N = 0.25 / \text{ml } \text{Na}_2\text{S}_2\text{O}_3$ used

Lineality Checking

Determination of dissolved oxygen content by Winkler Titration *

Purging Time (min)	2		5		10	
Trial	1	2	1	2	1	2
Initial Vol. of $\text{Na}_2\text{S}_2\text{O}_3$ (ml)	0.00	11.30	22.70	0.00	8.40	13.20
Final Vol. of $\text{Na}_2\text{S}_2\text{O}_3$ (ml)	11.30	22.70	30.80	8.40	13.20	18.10
Vol. (V) of $\text{Na}_2\text{S}_2\text{O}_3$ used (ml)	11.30	11.40	8.10	8.40	4.80	4.90
Dissolved Oxygen (DO), mg/L	7.21	7.27	5.17	5.36	3.06	3.13
Acceptance criteria, Deviation	Less than + 0.3mg/L		Less than + 0.3mg/L		Less than + 0.3mg/L	

Calculation: $\text{DO (mg/L)} = V \times N \times 8000/298$

Purging time, min	DO meter reading, mg/L			Winkler Titration result *, mg/L			Difference (%) of DO Content
	1	2	Average	1	2	Average	
2	7.10	7.30	7.20	7.21	7.27	7.24	0.55
5	5.14	5.50	5.32	5.17	5.36	5.27	0.94
10	3.09	3.31	3.29	3.06	3.13	3.10	5.95
Linear regression coefficient				0.9999			



Internal Calibration Report of Dissolved Oxygen Meter

Zero Point Checking

DO meter reading, mg/L	0.00
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Salinity Checking

Reagent No. of NaCl (10ppt)	CPE/012/4.7/002/13	Reagent No. of NaCl (30ppt)	CPE/012/4.8/002/13
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*Determination of dissolved oxygen content by Winkler Titration ***

Salinity (ppt)	10		30	
Trial	1	2	1	2
Initial Vol. of Na ₂ S ₂ O ₃ (ml)	0.00	11.80	24.10	35.20
Final Vol. of Na ₂ S ₂ O ₃ (ml)	11.80	24.10	35.20	46.50
Vol. (V) of Na ₂ S ₂ O ₃ used (ml)	11.80	12.30	11.10	11.30
Dissolved Oxygen (DO), mg/L	7.53	7.85	7.08	7.21
Acceptance criteria, Deviation	Less than + 0.3mg/L		Less than + 0.3mg/L	

Calculation: $DO (mg/L) = V \times N \times 8000/298$

Salinity (ppt)	DO meter reading, mg/L			Winkler Titration result**, mg/L			Difference (%) of DO Content
	1	2	Average	1	2	Average	
10	7.55	7.89	7.72	7.53	7.85	7.69	0.39
30	7.04	7.16	7.1	7.08	7.21	7.15	0.70

Acceptance Criteria

- (1) Difference between temperature readings from temperature sensor of DO probe and reference thermometer : < 0.5 °C
- (2) Linear regression coefficient : >0.99
- (3) Zero checking: 0.0mg/L
- (4) Difference (%) of DO content from the meter reading and by winkler titration : within ± 5%

The equipment complies # / ~~does not comply~~ # with the specified requirements and is deemed acceptable # / unacceptable # for use.

Delete as appropriate

Calibrated by

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Approved by :



Performance Check of Salinity Meter

Equipment Ref. No. : ET/EW/008/006 Manufacturer : YSI

Model No. : Pro 2030 Serial No. : 12A 100554

Date of Calibration : 19/12/2013 Due Date : 18/03/2014

Ref. No. of Salinity Standard used (30ppt)

S/001/5

Salinity Standard (ppt)	Measured Salinity (ppt)	Difference %
30.0	30.8	2.63

Acceptance Criteria

Difference : <10 %

The salinity meter complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use. Measurements are traceable to national standards.

Checked by : 

Approved by : 