



Performance Check of Turbidity Meter

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

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

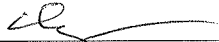
Date of Calibration : 08/102013 Due Date : 07/01/2014

Gelex Vial Std	Theoretical Value (NTU)	Measured Value (NTU)	Difference %
0-10 NTU	5	5.23	4.50
10-100 NTU	50	52.1	4.11
100-1000 NTU	550	566	2.87

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>19/09/2013</u>	Calibration Due Date : <u>18/12/2013</u>

Temperature Verification

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

Ref. No. of Water Bath : ---

		Temperature (°C)		
Reference Thermometer reading	Measured	20.1	Corrected	19.8
DO Meter reading	Measured	19.6	Difference	0.2

Standardization of sodium thiosulphate (Na₂S₂O₃) solution

Reagent No. of Na ₂ S ₂ O ₃ titrant	CPE/012/4.5/001/7	Reagent No. of 0.025N K ₂ Cr ₂ O ₇	CPE/012/4.4/001/1921
		Trial 1	Trial 2
Initial Vol. of Na ₂ S ₂ O ₃ (ml)		0.50	15.00
Final Vol. of Na ₂ S ₂ O ₃ (ml)		10.95	25.50
Vol. of Na ₂ S ₂ O ₃ used (ml)		10.45	10.50
Normality of Na ₂ S ₂ O ₃ solution (N)		0.02392	0.02381
Average Normality (N) of Na ₂ S ₂ O ₃ solution (N)		0.02387	
Acceptance criteria, Deviation		Less than ± 0.001N	

Calculation: Normality of Na₂S₂O₃, N = 0.25 / ml Na₂S₂O₃ used

Linearity Checking

*Determination of dissolved oxygen content by Winkler Titration **

Purging Time (min)	2		5		10	
	1	2	1	2	1	2
Initial Vol. of Na ₂ S ₂ O ₃ (ml)	0.00	11.20	22.50	0.00	8.10	12.90
Final Vol. of Na ₂ S ₂ O ₃ (ml)	11.20	22.50	30.40	8.10	12.90	17.80
Vol. (V) of Na ₂ S ₂ O ₃ used (ml)	11.20	11.30	7.90	8.10	4.80	4.90
Dissolved Oxygen (DO), mg/L	7.18	7.24	5.06	5.19	3.08	3.14
Acceptance criteria, Deviation	Less than + 0.3mg/L		Less than + 0.3mg/L		Less than + 0.3mg/L	

Calculation: DO (mg/L) = V x N x 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	7.18	7.24	7.21	0.14
5	5.13	5.52	5.33	5.06	5.19	5.13	3.82
10	3.09	3.31	3.20	3.08	3.14	3.11	2.85
Linear regression coefficient				0.9979			



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/012/4.7/002/09	Reagent No. of NaCl (30ppt)	CPE/012/4.8/002/09
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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	24.00	35.10
Final Vol. of Na ₂ S ₂ O ₃ (ml)	11.80	24.00	35.10	46.40
Vol. (V) of Na ₂ S ₂ O ₃ used (ml)	11.80	12.20	11.10	11.30
Dissolved Oxygen (DO), mg/L	7.56	7.82	7.11	7.24
Acceptance criteria, Deviation	Less than + 0.3mg/L		Less than + 0.3mg/L	

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

Salinity (ppt)	DO meter reading, mg/L			Winkler Titration result**, mg/L			Difference (%) of DO Content
	1	2	Average	1	2	Average	
10	7.65	7.88	7.77	7.56	7.82	7.69	1.03
30	7.03	7.15	7.09	7.11	7.24	7.18	1.26

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 :

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 : 19/09/2012 Due Date : 18/12/2013

Ref. No. of Salinity Standard used (30ppt)	S/001/5
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Salinity Standard (ppt)	Measured Salinity (ppt)	Difference %
30.0	31.8	5.83

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 : 