

English

Deutsch

Español

## CERTIFICATE OF ANALYSIS

## ANALYSENZERTIFIKAT

## CERTIFICADO DE ANÁLISIS

**Product**  
pH 10.00 buffer solution at 25°C.

**BATCH number** 15156

**Stability**  
At last until: 12/2016

**Composition**  
Sodium hydrogen carbonate NaHCO<sub>3</sub>.  
Sodium carbonate Na<sub>2</sub>CO<sub>3</sub>.  
Germicide.

**pH nominal value**  
10.00 ± 0.02 at 25°C.

**Uncertainty**  
U < ± 0.02 pH at 25°C, for k=2, P=95% values.  
Iculated according to EAL-R2.

**Traceability**  
Solution compared against buffer solutions prepared in accordance with norm DIN 19266, from standard reference material NIST, PTB and DFM.

**CERTIFICATE**  
HACH LANGE certifies that this solution has been manufactured in accordance with DIN 19267. The measurement of the buffer solution is performed by two-point calibration using glass electrode. The pH value complies with the nominal value of the product.

**Additional information**  
Once the bottle is opened and at room temperature, the solution can be maintained stable for 6 months if contamination is avoided.

- Do not return the used solution into the bottle.
- Do not introduce the electrode into the bottle.

Store the bottle in a cool and dry place.

**pH values according to temperature:**

°C	pH	°C	pH
0	10.30	30	9.95
10	10.17	40	9.88
20	10.05	50	9.82
25	10.00		

**Presentation**

Bottle of	125 ml	Code	LZW9470.99
Bottle of	250 ml	Code	LZW9471.99
Bottle of	1000 ml	Code	LZW9472.99

Date of analysis: 15.06.2015

HACH LANGE Calibration Laboratory, Germany

**Produkt**  
pH 10.00 Standardlösung bei 25°C.

**Chargennummer** 15156

**Stabilität**  
Mindestens bis: 12/2016

**Zusammensetzung**  
Natriumhydrogencarbonat NaHCO<sub>3</sub>.  
Natriumcarbonat Na<sub>2</sub>CO<sub>3</sub>.  
Germicide.

**pH Nominalwert**  
10,00 ± 0,02 bei 25°C.

**Gesamtunsicherheit**  
U < ± 0,02 pH bei 25°C, für k=2, P=95%  
Vertrauensintervall. Berechnet nach EAL-R2.

**Rückführbarkeit**  
Entsprechend DIN 19266, rückführbar auf Standard-Referenzmaterial NIST, PTB und DFM.

**ZERTIFIKAT**  
HACH LANGE zertifiziert, die Standardlösung wurde nach DIN 19267 hergestellt. Der zertifizierte Wert der Pufferlösung wurde durch Zweipunktkalibrierung mittels Glaselektrode bestimmt. Der pH Wert stimmt mit dem Nominalwert überein.

**Weitere Information**  
Nach Öffnen der Flaschen und Lagerung bei Raumtemperatur ist die Lösung für 6 Monate stabil, wenn Kontamination vermieden wird.

- Geben Sie gebrauchte Standardlösung nicht zurück in die Flasche.
- Elektroden nicht in der Flasche kalibrieren.
- Lagern Sie die Standardlösung an einem trockenen, kühlen Ort.

**Temperaturabhängigkeit der pH-Werte:**

°C	pH	°C	pH
0	10,30	30	9,95
10	10,17	40	9,88
20	10,05	50	9,82
25	10,00		

**Produktangebot**

Flasche mit	125 ml	AN	LZW9470.99
Flasche mit	250 ml	AN	LZW9471.99
Flasche mit	1000 ml	AN	LZW9472.99

Datum der Analyse: 15.06.2015

HACH LANGE Kalibrierlabor, Deutschland

**Producto**  
Disolución tampón pH 10.00 a 25°C.

**Número de LOTE** 15156

**Estabilidad**  
Como mínimo hasta: 12/2016

**Composición**  
Sodio hidrógeno carbonato NaHCO<sub>3</sub>.  
Sodio carbonato Na<sub>2</sub>CO<sub>3</sub>.  
Germicide.

**Valor nominal pH**  
10.00 ± 0.02 a 25°C.

**Incertidumbre**  
U < ± 0.02 pH a 25°C, para valores de k=2, P=95%.  
Calculada según EAL-R2.

**Trazabilidad**  
Disolución confrontada frente a disoluciones tampón preparadas según la norma DIN 19266, a partir de materiales de referencia NIST, PTB y DFM.

**CERTIFICADO**  
HACH LANGE certifica que esta disolución ha sido fabricada según la norma DIN 19267. La medida de pH en la disolución tampón se realiza mediante una calibración en dos puntos y utilizando electrodo de vidrio. El valor de pH cumple con el valor nominal del producto.

**Información adicional**  
Una vez abierta la botella y a temperatura ambiente, la disolución puede mantenerse estable 6 meses si se evita su contaminación.

- No devolver a la botella la disolución utilizada.
- No introducir el electrodo en la botella.
- Mantener la botella en lugar fresco y seco.

**Valores de pH en función de la temperatura:**

°C	pH	°C	pH
0	10.30	30	9.95
10	10.17	40	9.88
20	10.05	50	9.82
25	10.00		

**Presentación**

Botella de	125 ml	Código	LZW9470.99
Botella de	250 ml	Código	LZW9471.99
Botella de	1000 ml	Código	LZW9472.99

Fecha de análisis: 15.06.2015

HACH LANGE Laboratorio de Calibración, Alemania

Français

Italiano

Português

## CERTIFICAT D'ANALYSE

## CERTIFICATO DI ANALISI

## CERTIFICADO DE ANÁLISE

## Produit

Solution tampon pH 10.00 à 25°C.

Numéro de LOT

15156

## Stabilité

Minimum jusqu'à:

12/2016

## Composition

Sodium hydrogène carbonato NaHCO<sub>3</sub>.Sodium carbonate Na<sub>2</sub>CO<sub>3</sub>.

Germicide.

## Valeur nominale pH

10,00 ± 0,02 at 25°C.

## Incertitude

U &lt; ± 0,02 pH à 25°C, pour valeurs de k=2, P=95%, Calculée selon EAL-R2.

## Traçabilité

Solution comparée avec solutions tampon préparées selon la norme DIN 19266, à partir de matériaux étalon de référence NIST, PTB et DFM.

## CERTIFICAT

HACH LANGE certifie que cette solution a été fabriquée selon la norme DIN 19267.

La mesure de la solution tampon est effectuée par la valeur du pH à l'aide d'électrodes de verre. La valeur du pH accomplit avec la valeur nominale du produit.

## Information additionnelle

Une fois la bouteille ouverte et à température ambiante, la solution peut se maintenir stable 6 mois si on évite sa contamination.

- Ne videz pas la solution utilisée dans la bouteille.
- N'immergez pas l'électrode dans la bouteille.
- Stockez la bouteille dans un lieu frais et sec.

## Valeurs de pH en fonction de la température:

°C	pH	°C	pH
0	10,30	30	9,95
10	10,17	40	9,88
20	10,05	50	9,82
25	10,00		

## Présentation

Bouteille de 125 ml Code LZW9470.99  
 Bouteille de 250 ml Code LZW9471.99  
 Bouteille de 1000 ml Code LZW9472.99

Date de l'analyse:

15.06.2015

HACH LANGE Laboratoire de Calibrage, Allemagne

## Product

Soluzione tampone pH 10.00 a 25°C.

Numero di LOTTO

15156

## Stabilità

Come minimo fino a:

12/2016

## Composizione

Sodio idrogeno carbonato NaHCO<sub>3</sub>.Sodio carbonato Na<sub>2</sub>CO<sub>3</sub>.

Germicida.

## Valore nominale pH

10.00 ± 0.02 a 25°C.

## Incertezza

U &lt; ± 0.02 pH a 25°C, per valori di k=2, P=95%. Calcolata secondo EAL-R2.

## Tracciabilità

Soluzione confrontata contro soluzioni tampone preparate secondo la norma DIN 19266, a partire da campioni di riferimento NIST, PTB e DFM.

## CERTIFICATO

HACH LANGE certifica che questa soluzione è stata prodotta secondo la norma DIN 19267. La misura della soluzione tampone viene eseguita da una calibrazione in due punti utilizzando elettrodo di vetro. Il valore di pH è in accordo con il valore nominale del prodotto.

## Informazione supplementare

Una volta aperta la bottiglia e a temperatura ambiente, la soluzione può essere mantenuta stabile 6 mesi se si evita la sua contaminazione.

- Non rimettere nella bottiglia soluzione utilizzata.
- Non introdurre l'elettrodo nella bottiglia.
- Conservare la bottiglia in luogo fresco e asciutto.

## Valori di pH in funzione della temperatura:

°C	pH	°C	pH
0	10.30	30	9.95
10	10.17	40	9.88
20	10.05	50	9.82
25	10.00		

## Presentazione

Bottiglia da 125 ml Codice LZW9470.99  
 Bottiglia da 250 ml Codice LZW9471.99  
 Bottiglia da 1000 ml Codice LZW9472.99

Data di analisi:

15.06.2015

HACH LANGE Laboratorio di Calibrazione, Germania

## Product

Solução tampão pH 10.00 a 25°C.

Número de LOTE

15156

## Estabilidade

Pelo menos até:

12/2016

## Composição

Sódio hidrogênio carbonato NaHCO<sub>3</sub>.Sódio carbonato Na<sub>2</sub>CO<sub>3</sub>.

Germicida.

## Valor nominal pH

10.00 ± 0.02 a 25°C.

## Incerteza

U &lt; ±0.02 pH a 25°C, para valores de k=2, P=95%. Calculado segundo EAL-R2.

## Rastreabilidade

De acordo com DIN 19266, referente ao padrão Material de referência NIST, PTB e DFM.

## CERTIFICADO

HACH LANGE certifica que a solução padrão foi fabricada de acordo com a norma DIN 19267. O valor certificado a solução tampão foi preparado por dois pontos de calibração determinada usando electrodo de vidro. O valor de pH está de acordo com o valor nominal.

## Informação adicional

Uma vez aberta a garrafa à temperatura ambiente, a solução pode manter-se estável por 6 meses se você evitar a sua contaminação.

- Não devolver a solução utilizada à garrafa.
- Não introduzir o electrodo na garrafa.
- Armazenar a garrafa num lugar fresco e seco.

## Valores de pH em função da temperatura

°C	pH	°C	pH
0	10.30	30	9.95
10	10.17	40	9.88
20	10.05	50	9.82
25	10.00		

## Apresentação

Garrafa de 125 ml, Código LZW9470.99  
 Garrafa de 250 ml, Código LZW9471.99  
 Garrafa de 1000 ml, Código LZW9472.99

Data da análise:

15.06.2015

HACH LANGE Laboratório de Calibração, Alemanha



## Calibration certificate

Central Organization for Standardization and Quality Control (COSQC)

Metrology Department

P.O. Box 13032 Aljadria street, Baghdad, Tel: 7765180

E-Mail: [cosqc@yahoo.com](mailto:cosqc@yahoo.com)

Certificate No.: MAS/2/2017  
Date of issue : 8/1/2017

Customer	
Name:	الجامعة التكنولوجية/ مركز بحوث البيئة / م. الزراعة النسيجية والكيمياء المناعية
Address:	العراق/ بغداد

Item under calibration			
Description:	Electronic Weighing Instrument		
Manufacturer:	DENVER		
Model:	TP - 214		
Serial number:	25404434		
Other identification:	Max = 210g	d= 0.1mg	e = /
Date of reception:	28/1/2016		
Condition of reception:	Used		

Standards used in the calibration			
Description:	Set of weights from (1mg –100g)	Single weight ( 200g )	
Manufacturer:	Oertling	Oertling	
Model:	W12	W10	
Serial number:	---	---	
Other identification:	---	---	

Calibration information			
Date of calibration:	5/1/2017		
Place of calibration:	Com Lab		
Method(s) of calibration:	Calibration method using a set of mass Accuracy Class ( E2 ) Base down OIML R76, 2006		
Calibrated quantity:	Mass		
Results of calibration:	Attached a complete result in Annex 1 of this certificate		
Measurement uncertainty:	The reported expanded uncertainty is based on GUM Standard and the standard uncertainty multiplied by coverage factor k=2 to give confidence level of 95% The uncertainty doesn't include the eccentricity or hysteresis errors. The end user shall estimate both eccentricity or hysteresis according to real measurement procedure		
Metrological traceability:	The Traceability of measurement to the SI units is assured by the National standard maintained at Central Organization for standardization and Quality Control through calibration certificate issued from PTB&SCS		
Environmental conditions of calibration:	Temp. : ( ± 1°C )	R. H. : ( ± 5% )	Pressure ( mbar )
Observations, opinions or recommendations:	The results are within the tolerance of OIML R76-1		

Performed by : Saif Ali

Approved by: Hanan A. JAI-Moudares  
Head of Mass & pressure section

8/1/2017



## Calibration certificate

Central Organization for Standardization and Quality Control (COSQC)

Metrology Department

P.O. Box13032 Aljadria street,Baghdad ,Tel:7765180

E-Mail : [cosqc@yahoo.com](mailto:cosqc@yahoo.com)

### Results

#### Befor adjustent

Load (g)	Reading(g)	Error (g)
1	0.9984	-0.0016
20	19.9663	-0.0347
70	69.8820	-0.1180
150	149.7476	-0.2634
210	209.6481	-0.3649

#### After adjustment

##### 1-Weighing Performance:

Load (g)	Increasing Load		Load (g)	Decreasing Load	
	Reading(g)	Error (g)		Reading(g)	Error (g)
1	1.0000	0.0000	210	209.9999	-0.0001
20	20.0000	0.0000	150	149.9999	-0.0001
70	70.0000	0.0000	70	70.0000	0.0000
150	149.9999	-0.0001	20	20.0000	0.0000
210	209.9999	-0.0001	1	1.0000	0.0000

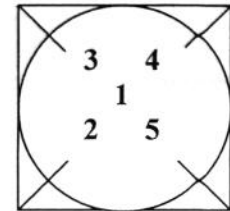
##### 2-Repeatability Test:

100%max (200) (g)	199.9999	199.9999	200.0000	200.0000	200.0000	200.0000
50%max (100) (g)	100.0000	100.0001	99.9998	99.9998	99.9998	99.9998

##### 3-Eccentricity Test:

(Difference from center)

Position No.	1	2	3	4	5
Load(g)	50g				
Reading (g)	49.9999	49.9998	50.0001	50.0000	49.9997
Error (g)	----	-0.0001	0.0002	0.0001	-0.0002



##### 4-TheExpanded Uncertainty:

load(g)	Expanded Uncertainty (g)
200	$\pm 0.00006$
100	$\pm 0.00006$

Performed by: Saif Ali

  
Reviewed by: Hanan A. J. Al-Moudares  
Head of Mass and Pressure Section

Certificate No: MAS/2/2017

Date of issue: 8 / 1 /2017



## Calibration Certificate

Central Organization for Standardization and Quality  
Control (COSQC)  
Metrology Department

P.O. Box 13032 Algeria street, Baghdad, Tel: 7765180

E-Mail : [cosqc@yahoo.com](mailto:cosqc@yahoo.com)

Certificate No.: PH 879/2016

Date of issue : 28/12/2016

Customer	
Name:	وزارة التعليم العالي والبحث العلمي / الجامعة التكنولوجية / مركز بحوث البيئة
Address:	العراق - بغداد

Item under calibration			
Description:	Drying Oven	Res= 0.1 C"	---
Manufacturer:	BINDER	---	---
Model:	ED 115	---	---
Serial number:	13-00896	---	---
Other identification:	(0 ----- 300) °C	---	---
Date of reception:	28/01/2016	---	---
Condition of reception:	GOOD	---	---

Standard (s) used in the calibration			
Description:	Temperature Calibrator	thermocoupls 9 (J) /1	---
Manufacturer:	BETA / USA	---	---
Model:	PTC - 8010	---	---
Serial number:	2	---	---
Other identification:	---	---	---

Calibration information	
Date of calibration:	25/12/2016
Place of calibration:	مختبر التربة والمياه
Method(s) of calibration:	Calibration method using DMS 2008 - 2010
Calibrated quantity:	Temperature / Celcius / °C
Results of calibration:	Attached a complete result in Annex 1 of this certificate
Measurement uncertainty:	The reported expanded uncertainty is based on GUM Standard and the standard Uncertainty multiplied by coverage factor k=2 to give confidence level of 95%
Metrological traceability:	The traceability of measurement results to the SI units is assured by the National standard maintained at Central Organization for standardization and Quality Control through calibration at : COSQC / ELECT. LAB. (215/2016/E) COSQC / THERMAL LAB. (307 - 315 /2016)
Environmental conditions of calibration:	Temp. (20.8°C): ±1°C R. H. (35%) ±5%
Observations, opinions or recommendations:	Not Required

Performed by :

Ali+JAMAL

28/12/2016

Approved by:

BAN OMER

28.12.2016

1 of 2

This certificate is issued in accordance with the laboratory accreditation requirements. It provides traceability of measurement to recognized national standards, and to the units of measurement realized at the COSQC or other recognized national standards laboratories. This certificate may not be reproduced other than in full by photographic process. This certificate refers only to the particular item submitted for calibration

REF. TC - 012



## Calibration Certificate

Central Organization for Standardization and Quality  
Control (COSQC)  
Metrology Department

P.O. Box13032 Algeria street, Baghdad ,Tel:7765180

E-Mail : cosqc@yahoo.com

Certificate No.: PH 879/ 2016

Date of issue : 28/12/2016

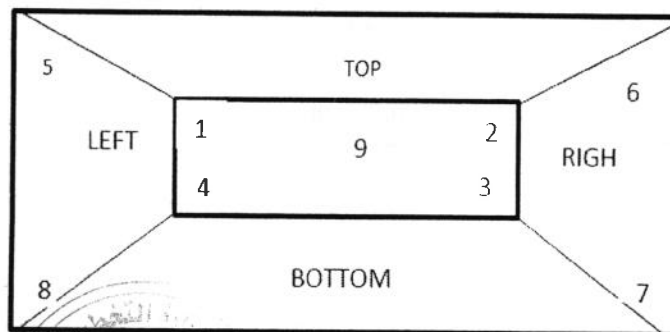
### Results

The results of the measurements are given on table below.

SET POINT °C	UUC READING °C	REF. INDICATOR READING °C	ERROR OF INDICATION °C	MAX. TEMPERATURE FLUCTUATION °C	MAX TEMPERATURE UNIFORMITY °C	UNCERTAINTY ±°C
70	70.0	68.8	1.2	0.7	0.7	0.6
140	140.0	137.5	2.5	0.2	0.7	0.4
160	160.0	158.0	2.0	0.7	1.2	0.8

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k=2$ , providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with international practice.

The procedure consist of using nine sensors to check the temperatuer distribution in the oven.The location of the sensors is given below &the temperature is checked in agiven time frame.



Performed by:

Ali+JAMAL

28/12/2016

Revised by:

AHMED

Approved by:

BAN OMER

28.12.2016

2 of 2

This certificate is issued in accordance with the laboratory accreditation requirements. It provides traceability of measurement to recognized national standards, and to the units of measurement realized at the COSQC or other recognized national standards laboratories. This certificate may not be reproduced other than in full by photographic process. This certificate refers only to the particular item submitted for calibration



## Calibration Certificate

Central Organization for Standardization and Quality  
Control (COSQC)  
Metrology Department

P.O. Box13032 Algeria street, Baghdad ,Tel:7765180

E-Mail : [cosqc@yahoo.com](mailto:cosqc@yahoo.com)

Certificate No.: PH 878/ 2016

Date of issue : 28/12/2016

Customer	
Name:	وزارة التعليم العالي والبحث العلمي / الجامعة التكنولوجية / مركز بحوث البيئة
Address:	العراق - بغداد

Item under calibration			
Description:	Drying Oven	Res= 10.0 C°	---
Manufacturer:	MEMMERT	---	---
Model:	UM 500	---	---
Serial number:	P598.0707	---	---
Other identification:	(30 ----- 220) °C	---	---
Date of reception:	28/01/2016	---	---
Condition of reception:	GOOD	---	---

Standard (s) used in the calibration			
Description:	Temperature Calibrator	thermocoupls 9 (J) / 1	---
Manufacturer:	BETA / USA	---	---
Model:	PTC - 8010	---	---
Serial number:	2	---	---
Other identification:	---	---	---

Calibration information	
Date of calibration:	25/12/2016
Place of calibration:	مختبر تحليل الالي
Method(s) of calibration:	Calibration method using DMS 2008 - 2010
Calibrated quantity:	Temperature / Celcius / ° C
Results of calibration:	Attached a complete result in Annex 1 of this certificate
Measurement uncertainty:	The reported expanded uncertainty is based on GUM Standard and the standard Uncertainty multiplied by coverage factor k=2 to give confidence level of 95%
Metrological traceability:	The traceability of measurement results to the SI units is assured by the National standard maintained at Central Organization for standardization and Quality Control through calibration at : COSQC / ELECT. LAB. (215/2016/E) COSQC / THERMAL LAB. (307 - 315 /2016)
Environmental conditions of calibration:	Temp. (20.7°C): ±1°C R. H.(53%) ±5%
Observations, opinions or recommendations:	Not Required

Performed by :

Ali JAMAL

28/12/2016

Approved by:

BAN OMER

28.12.2016

1 of 2

This certificate is issued in accordance with the laboratory accreditation requirements. It provides traceability of measurement to recognized national standards, and to the units of measurement realized at the COSQC or other recognized national standards laboratories. This certificate may not be reproduced other than in full by photographic process. This certificate refers only to the particular item submitted for calibration

REF. TC - 012



# Calibration Certificate

Central Organization for Standardization and Quality Control (COSQC)  
Metrology Department

P.O. Box13032 Algeria street, Baghdad ,Tel:7765180

E-Mail : cosqc@yahoo.com

Certificate No.: PH 878/ 2016

Date of issue : 28/12/2016

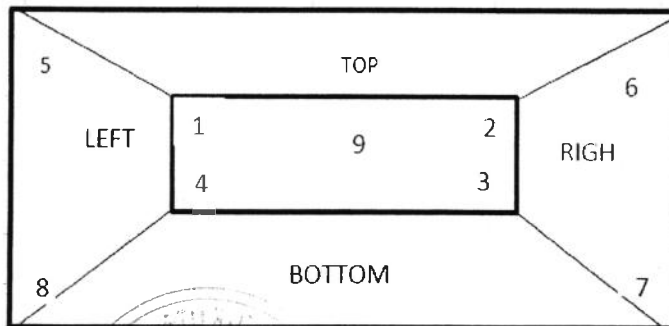
## Results

The results of the measurements are given on table below.

SET POINT °C	UUC READING °C	REF. INDICATOR READING °C	ERROR OF INDICATION °C	MAX. TEMPERATURE FLUCTUATION °C	MAX TEMPERATURE UNIFORMITY °C	UNCERTAINTY ±°C
100	101.0	97.4	3.6	0.5	1.4	0.9
150	150.0	147.0	3.0	0.2	0.3	0.2
180	180.0	179.8	0.2	0.3	1.2	0.7

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k=2$ , providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with international practice.

The procedure consist of using nine sensors to check the temperatuer distribution in the oven.The location of the sensors is given below &the temperature is checked in agiven time frame.



Performed by:

Ali JAMAL

28/12/2016

Revised by:

AHMED

Approved by:

BAN OMER

28.12.2016

2 of 2

This certificate is issued in accordance with the laboratory accreditation requirements. It provides traceability of measurement to recognized national standards, and to the units of measurement realized at the COSQC or other recognized national standards laboratories. This certificate may not be reproduced other than in full by photographic process. This certificate refers only to the particular item submitted for calibration





Form for calibration  
Central Organization for Standardization  
and Quality Control  
- Metrology Department(COSQC)

Identification  
FOR -TC-012  
Revision: 0  
Valid after : 12/2016

## Calibration Certificate

Central Organization for Standardization and Quality Control (COSQC)

P.O. Box 13032 Algeria street, Baghdad ,Tel:7765180 , E-Mail : cosqc@yahoo.com

Certificate No.: PH 901/ 2016

Date of issue : 28/12/2016

Customer				
Name:	وزارة التعليم العالي والبحث العلمي / الجامعة التكنولوجية / مركز بحوث البيئة			
Address:	العراق - بغداد			
Item under calibration				
Description:	GLASS THERMOMETER	_____	_____	_____
Manufacturer:	_____	_____	_____	_____
Model:	_____	_____	_____	_____
Serial number:	_____	_____	_____	_____
Other identification:	( 0 ----- 100 )° C	DIV. = 1° C	_____	_____
Date of reception:	28/01/2016	_____	_____	_____
Condition of reception:	GOOD	_____	_____	_____

Standard(s) used in the calibration				
Description:	Chub	PT100	_____	_____
Manufacturer:	Fluke / USA	Fluke / USA	_____	_____
Model:	1529	5615	_____	_____
Serial number:	B2C 801	887857	_____	_____
Other identification:	_____	_____	_____	_____

Calibration information				
Date of calibration:	28/12/2016			
Place of calibration:	Temperature measurement lab.			
Method(s) of calibration:	Calibration method using Working Thermometer - Calibration Procedure 2008			
Calibrated quantity:	Temperature / Celcius / °C			
Results of calibration:	Attached a complete result in Annex 1 of this certificate			
Measurement uncertainty:	The reported expanded uncertainty is based on GUM Standard and the standard Uncertainty multiplied by coverage factor k=2 to give confidence level of 95%			
Metrological traceability:	The traceability of measurement results to the SI units is assured by the National standard maintained at Central Organization for standardization and Quality Control through calibration at :- COSQC / Electrical lab ( Cert. 028/2016/E) NVLAP / PT100 Report No.( 10860 )			
Environmental conditions of calibration:	Temp. (19.66 °C):	±1°C	R. H.(48.1 %)	±5%
Observations, opinions or recommendations:	The Results of Calibration Compatible with the Procedure			


Performed by :

MUSTAFA  
28/12/2016

Approved by:

BAN OMER FAROOQ  
28/12/2016

This certificate is issued in accordance with the laboratory accreditation requirements. It provides traceability of measurement to recognized national standards, and to the units of measurement realized at the COSQC or other recognized national standards laboratories. This certificate may not be reproduced other than in full by photographic process. This certificate refers only to the particular item submitted for calibration

	Form for calibration Central Organization for Standardization and Quality Control - Metrology Department(COSQC)	:Identification FOR -TC-012
		Revision: 0
		Valid after : 12/2016


## Calibration Certificate

Central Organization for Standardization and Quality Control (COSQC)  
P.O. Box13032 Algeria street, Baghdad ,Tel:7765180 , E-Mail : cosqc@yahoo.com


Certificate No.: PH 901 / 2016  
Date of issue : 28/12/2016

### Results

Set Value C°	Reference Value C°	Indicate Value C°	Correction C°	Error C°	Uncertainty C°
20	20.64	21.00	-0.36	0.36	0.58
40	40.13	40.50	-0.37	0.37	
60	60.79	60.60	0.19	-0.19	

  
Performed by:  
MUSTAFA  
28/12/2016



  
Revised by  
JAMAL  
28/12/2016

  
Approved by:  
BAN OMER FAROOQ  
28/12/2016

2 of 2

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MUSTAFA ..... 2016

# Sh-101 Digital Thermo-Hygrometer

## Technical Data:

Measuring Range:  
-50C~70C or -58F~158F 10%RH~99%RH  
Accuracy: +/-1C or +/-2F, +/-5%RH  
Display Resolution: 0.1C or 0.1F, 1%RH  
C/F Switch  
Max/Min Temperature Records  
Date/Time display  
Operating Voltage: 1.5V(AA)

جہاز: تھرمو ہائگرومیٹر  
والیٹری

## Key Function:

MODE: To switch time and alarm, hold it for 2s to set time;  
ADJ: To switch time and date, when setting time to add 1;  
C/F: To switch Celsius or Fahrenheit;  
MAX/MIN: To display the highest or lowest temperature and humidity in memory; Clear memory

## Operation Description:

Put battery into the battery case, the screen will display all the word, after 3s, it will display time, the time is 12:00, date is 1/1.

Hold MODE key for 2s, you can set minute, hour, 12/24 hour system, month, day, press Up key it can add "1", No key pressed in 1 minute, auto back. Press MODE key, into alarm mode, hold MODE for 2s, to set minute, hour for alarm. on alarm mode, press ADJ key to chose four state (see the LCD display):

1. Display:  To alert when the time is just in hour

2. Display:  Alarm ON

3. Both display: Two function all ON

4. Both not display: Two function all OFF

Press C/F key, the value of temperature will display with Fahrenheit, press it again, display with Celsius.

Press MAX/MIN key, it will display the highest and lowest temperature and humidity with it was measured, hold the key for 2s, it can clear the memory.



Form for calibration  
Central Organization for Standardization  
and Quality Control  
- Metrology Department(COSQC)

Identification  
FOR -TC-012

Revision: 0

Valid after : 12/2016

## Calibration Certificate

Central Organization for Standardization and Quality Control (COSQC)

P.O. Box 13032 Algeria street, Baghdad ,Tel:7765180 , E-Mail : cosqc@yahoo.com

Certificate No.: PH 902/ 2016

Date of issue : 28/12/2016

Customer				
Name:	وزارة التعليم العالي والبحث العلمي / الجامعة التكنولوجية / مركز بحوث البيئة			
Address:	العراق - بغداد			
Item under calibration				
Description:	POCKET THERMOMETER WITH STAINLESS STEEL PROBE			
Manufacturer:	HANNA	_____	_____	_____
Model:	HI 98509	_____	_____	_____
Serial number:	_____	_____	_____	_____
Other identification:	( - 50 ----- 150 )° C	DIV. = 0.1° C	_____	_____
Date of reception:	28/01/2016	_____	_____	_____
Condition of reception:	GOOD	_____	_____	_____

Standard(s) used in the calibration				
Description:	Chub	PT100	_____	_____
Manufacturer:	Fluke / USA	Fluke / USA	_____	_____
Model:	1529	5615	_____	_____
Serial number:	B2C 801	887857	_____	_____
Other identification:	_____	_____	_____	_____

Calibration information				
Date of calibration:	28/12/2016			
Place of calibration:	Temperature measurement lab.			
Method(s) of calibration:	Calibration method using Working Thermometer - Calibration Procedure 2008			
Calibrated quantity:	Temperature / Celcius / °C			
Results of calibration:	Attached a complete result in Annex 1 of this certificate			
Measurement uncertainty:	The reported expanded uncertainty is based on GUM Standard and the standard Uncertainty multiplied by coverage factor k=2 to give confidence level of 95%			
Metrological traceability:	The traceability of measurement results to the SI units is assured by the National standard maintained at Central Organization for standardization and Quality Control through calibration at :- COSQC / Electrical lab ( Cert. 028/2016/E) NVLAP / PT100 Report No.( 10860 )			
Environmental conditions of calibration:	Temp. (19.66 °C):	±1°C	R. H.(48.1 %)	±5%
Observations, opinions or recommendations:	The Results of Calibration Compatible with the Procedure			

Performed by :

MUSTAFA  
28/12/2016

Approved by:


BAN OMER FAROOQ  
28/12/2016

1 of 2

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MUSTAFA ..... 2016

Ref. Proc TC-012

	Form for calibration Central Organization for Standardization and Quality Control - Metrology Department(COSQC)	: Identificat ion FOR -TC-012
		Revision: 0
		Valid after : 12/2016


## Calibration Certificate


Central Organization for Standardization and Quality Control (COSQC)  
P.O. Box13032 Algeria street, Baghdad ,Tel:7765180 , E-Mail : cosqc@yahoo.com

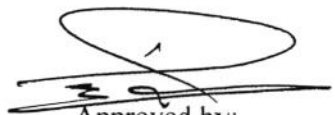
Certificate No.: PH 902/ 2016  
Date of issue : 28/12/2016

### Results

Set Value C°	Reference Value C°	Indicate Value C°	Correction C°	Error C°	Uncertainty C°
20	20.64	20.00	0.64	-0.64	0.06
40	40.13	39.00	1.13	-1.13	
60	60.79	59.30	1.49	-1.49	

  
Performed by:  
MUSTAFA  
28/12/2016

  
Revised by  
JAMAL  
28/12/2016

  
Approved by:  
BAN OMER FAROOQ  
28/12/2016

2 of 2

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MUSTAFA ..... 2016



## Calibration certificate

Central Organization for Standardization and Quality Control (COSQC)  
Metrology Department

P.O. Box 13032 Aljadria street, Baghdad, Tel: 7765180

E-Mail : [cosqc@yahoo.com](mailto:cosqc@yahoo.com)

Certificate No.: MAS/702/2016  
Date of Issue : 26/12/2016

Customer	
Name:	الجامعة التكنولوجية/ مركز بحوث البيئة / م. التحليل الآلي
Address:	العراق/ بغداد

Item under calibration			
Description:	Electronic Weighing Instrument		
Manufacturer:	DENVER		
Model:	TP - 214		
Serial number:	26606851		
Other identification:	Max = 210g	d = 0.1mg	e = /
Date of reception:	28/1/2016		
Condition of reception:	Used		


Standards used in the calibration			
Description:	Set of weights from (1mg -100g)	Single weight ( 200g )	
Manufacturer:	Oertling	Oertling	
Model:	W12	W10	
Serial number:	---	---	
Other identification:	---	---	

Calibration information			
Date of calibration:	25/12/2016		
Place of calibration:	Com Lab		
Method(s) of calibration:	Calibration method using a set of mass Accuracy Class ( E2 ) Base down OIML R76, 2006		
Calibrated quantity:	Mass		
Results of calibration:	Attached a complete result in Annex 1 of this certificate		
Measurement uncertainty:	The reported expanded uncertainty is based on GUM Standard and the standard uncertainty multiplied by coverage factor k=2 to give confidence level of 95% The uncertainty doesn't include the eccentricity or hysteresis errors. The end user shall estimate both eccentricity or hysteresis according to real measurement procedure		
Metrological traceability:	The Traceability of measurement to the SI units is assured by the National standard maintained at Central Organization for standardization and Quality Control through calibration certificate issued from PTB.		
Environmental conditions of calibration:	Temp. : ( $\pm 1^{\circ}\text{C}$ )	R. H. : ( $\pm 5\%$ )	Pressure ( mbar )
Observations, opinions or recommendations:	The results are within the tolerance of OIML R76-1		

Performed  
by :

  
Saif Ali

Approved  
by :

  
Hanan A. J. Al-Moujares  
Head of Mass & pressure section

26/12/2016



## Calibration certificate

Central Organization for Standardization and Quality Control (COSQC)  
Metrology Department

P.O. Box13032 Aljadria street,Baghdad ,Tel:7765180

E-Mail : [cosqc@yahoo.com](mailto:cosqc@yahoo.com)

### Results

#### Before adjustment

Load (g)	Reading(g)	Error (g)
1	0.9978	-0.0022
20	19.9606	-0.0394
70	69.8628	-0.1482
150	149.7060	-0.2949
210	209.5882	-0.4228

#### After adjustment

##### 1-Weighing Performance:

Load (g)	Increasing Load		Load (g)	Decreasing Load	
	Reading(g)	Error (g)		Reading(g)	Error (g)
1	1.0000	0.0000	210	209.9998	-0.0002
20	19.9999	-0.0001	150	149.9998	-0.0002
70	69.9997	-0.0003	70	69.9997	-0.0003
150	149.9998	-0.0002	20	19.9999	-0.0001
210	209.9998	-0.0002	1	1.0000	0.0000

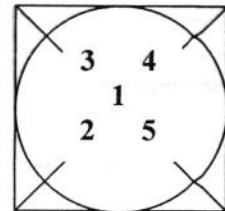
##### 2-Repeatability Test:

100%max (200) (g)	199.9997	199.9997	199.9997	199.9997	199.9997	199.9997
50%max (100) (g)	99.9998	99.9998	99.9998	99.9998	99.9998	99.9998

##### 3-Eccentricity Test:

(Difference from center)

Position No.	1	2	3	4	5
Load(g)	50g				
Reading (g)	50.0000	49.9999	49.9997	49.9997	49.9998
Error (g)	----	-0.0001	-0.0003	-0.0003	-0.0002



##### 4-TheExpanded Uncertainty:

load(g)	Expanded Uncertainty (g)
200	± 0.00007
100	± 0.00006

Performed by: Saif Ali

Reviewed by: Hanan A. J. Al-Moudares  
Head of Mass and Pressure Section

Certificate No: MAS/702/2016

Date of issue: 26/12/2016



## Calibration certificate

Central Organization for Standardization and Quality Control (COSQC)

Metrology Department

P.O. Box13032 Aljadria street, Baghdad, Tel:7765180

E-Mail : [cosqc@yahoo.com](mailto:cosqc@yahoo.com)

Certificate No.: MAS/701/2016

Date of Issue : 26/12/ 2016

Customer	
Name:	الجامعة التكنولوجية/ مركز بحوث البيئة / م. التحليل الآلي
Address:	العراق/ بغداد

Item under calibration			
Description:	Electronic Weighing Instrument		
Manufacturer:	PHOENIX		
Model:	AB - 224		
Serial number:	D 43970023		
Other identification:	Max = 220g	d= 0.1mg	e = /
Date of reception:	28/1/2016		
Condition of reception:	Used		

Standards used in the calibration			
Description:	Set of weights from (1mg -100g)	Single weight ( 200g )	
Manufacturer:	Oertling	Oertling	
Model:	W12	W10	
Serial number:	---	---	
Other identification:	---	---	

Calibration information			
Date of calibration:	25/12/2016		
Place of calibration:	Com Lab		
Method(s) of calibration:	Calibration method using a set of mass Accuracy Class ( E2 ) Base down OIML R76, 2006		
Calibrated quantity:	Mass		
Results of calibration:	Attached a complete result in Annex 1 of this certificate		
Measurement uncertainty:	The reported expanded uncertainty is based on GUM Standard and the standard uncertainty multiplied by coverage factor k=2 to give confidence level of 95% The uncertainty doesn't include the eccentricity or hysteric errors. The end user shall estimate both eccentricity or hysteric according to real measurement procedure		
Metrological traceability:	The Traceability of measurement to the SI units is assured by the National standard maintained at Central Organization for standardization and Quality Control through calibration certificate issued from PTB.		
Environmental conditions of calibration:	Temp. : ( $\pm 1^{\circ}\text{C}$ )	R. H. : ( $\pm 5\%$ )	Pressure ( mbar )
Observations, opinions or recommendations:	The results are within the tolerance of OIML R76-1		

Performed by : Saif Ali

Approved by: Hanan A. J. Al-Moudares  
Head of Mass & pressure section

28/12/2016





### Calibration certificate

Central Organization for Standardization and Quality Control (COSQC)  
Metrology Department

P.O. Box13032 Aljadria street,Baghdad ,Tel:7765180

E-Mail : [cosqc@yahoo.com](mailto:cosqc@yahoo.com)

### Results

#### Before adjustment

Load (g)	Reading(g)	Error (g)
1	0.9998	-0.0002
20	19.9992	-0.0008
70	69.9969	-0.0031
150	149.9935	-0.0065
220	219.9905	-0.0095

#### After adjustment

##### 1-Weighing Performance:

Load (g)	Increasing Load		Load (g)	Decreasing Load	
	Reading(g)	Error (g)		Reading(g)	Error (g)
1	0.9999	-0.0001	220	220.0000	0.0000
20	19.9999	-0.0001	150	150.0000	0.0000
70	69.9999	-0.0001	70	69.9999	-0.0001
150	150.0000	0.0000	20	19.9999	-0.0001
220	219.9998	-0.0002	1	0.9999	-0.0001

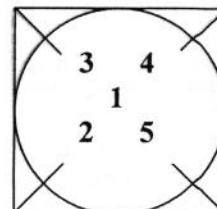
##### 2-Repeatability Test:

100%max (200) (g)	200.0001	200.0001	200.0001	200.0001	200.0001	200.0001
50%max (100) (g)	99.9997	99.9997	99.9997	99.9997	99.9997	99.9997

##### 3-Eccentricity Test:

(Difference from center)

Position No.	1	2	3	4	5
Load(g)	50g				
Reading (g)	49.9999	49.9999	49.9999	49.9999	49.9999
Error (g)	----	0.0000	0.0000	0.0000	0.0000



##### 4-TheExpanded Uncertainty:

load(g)	Expanded Uncertainty (g)
200	± 0.00006
100	± 0.00007

Performed by: Saif Ali

Reviewed by: Hanan A. J. Al-Moudares  
Head of Mass and Pressure Section

Certificate No: MAS/701/2016

Date of issue: 26/12/2016



## Calibration certificate

Central Organization for Standardization and Quality Control (COSQC)

Metrology Department

P.O. Box 13032 Aljadria street, Baghdad, Tel: 7765180

E-Mail : [cosqc@yahoo.com](mailto:cosqc@yahoo.com)

Certificate No.: MAS/703/2016

Date of Issue : 26/12/2016

Customer	
Name:	الجامعة التكنولوجية / مركز بحوث البيئة / م. التربة والمياه
Address:	العراق / بغداد

Item under calibration			
Description:	Electronic Weighing Instrument		
Manufacturer:	Precisa		
Model:	205 A		
Serial number:	19202		
Other identification:	Max = 205g	d = 0.1mg	e = /
Date of reception:	28/1/2016		
Condition of reception:	Used		

Standards used in the calibration			
Description:	Set of weights from (1mg -100g)	Single weight ( 200g )	
Manufacturer:	Oertling	Oertling	
Model:	W12	W10	
Serial number:	--	---	
Other identification:	--	---	

Calibration information			
Date of calibration:	25/12/2016		
Place of calibration:	Com Lab		
Method(s) of calibration:	Calibration method using a set of mass Accuracy Class ( E2 ) Base down OIML R76, 2006		
Calibrated quantity:	Mass		
Results of calibration:	Attached a complete result in Annex 1 of this certificate		
Measurement uncertainty:	The reported expanded uncertainty is based on GUM Standard and the standard uncertainty multiplied by coverage factor k=2 to give confidence level of 95% The uncertainty doesn't include the eccentricity or hysteresis errors. The end user shall estimate both eccentricity or hysteresis according to real measurement procedure		
Metrological traceability:	The Traceability of measurement to the SI units is assured by the National standard maintained at Central Organization for standardization and Quality Control through calibration certificate issued from PTB.		
Environmental conditions of calibration:	Temp. : ( $\pm 1^{\circ}\text{C}$ )	R. H. : ( $\pm 5\%$ )	Pressure ( mbar )
Observations, opinions or recommendations:	The results are within the tolerance of OIML R76-1 for three digits (0.001g).		

Performed by : Saif Ali

Approved by: Hanan A. J Al-Moudares  
Head of Mass & pressure section

26/12/2016



### Calibration certificate

Central Organization for Standardization and Quality Control (COSQC)  
Metrology Department

P.O. Box13032 Aljadria street,Baghdad ,Tel:7765180

E-Mail : [cosqc@yahoo.com](mailto:cosqc@yahoo.com)

### Results

#### Befor adjustent

Load (g)	Reading(g)	Error (g)
1	0.9988	-0.0012
20	19.9784	-0.0226
70	69.9234	-0.0776
150	149.8342	-0.1768
205	204.7721	-0.2389

#### After adjustment

##### 1-Weighing Performance:

Load (g)	Increasing Load		Load (g)	Decreasing Load	
	Reading(g)	Error (g)		Reading(g)	Error (g)
1	0.9999	-0.0001	205	204.9973	-0.0027
20	20.0002	0.0002	150	149.9992	-0.0008
70	70.0004	0.0004	70	70.0004	0.0004
150	149.9992	-0.0008	20	20.0002	0.0002
205	204.9973	-0.0027	1	0.9999	-0.0001

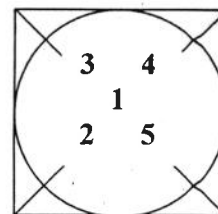
##### 2-Repeatability Test:

100%max (200) (g)	199.9977	199.9977	199.9977	199.9977	199.9977	199.9977
50%max (100) (g)	99.9997	99.9997	99.9997	99.9997	99.9997	99.9997

##### 3-Eccentricity Test:

(Difference from center)

Position No.	1	2	3	4	5
Load(g)	50g				
Reading (g)	50.0003	50.0005	50.0006	50.0006	50.0005
Error (g)	----	0.0002	0.0003	0.0003	0.0002



##### 4-TheExpanded Uncertainty:

load(g)	Expanded Uncertainty (g)
200	± 0.00009
100	± 0.00007

Performed by: Saif Ali

Reviewed by: Hanan A. J. Al-Moudares  
Head of Mass and Pressure Section

Certificate No: MAS/703/2016

Date of issue: 26/12/2016