



REMABEN SCIENTIFIC SERVICES LTD.

RC:614912
Public Analysts & Environmental Consultants

1, Abeokuta Street, Anifowoshe, Ikeja, Lagos, Nigeria. (1st Floor, behind Forte Oil & Mr. Biggs on Oba-Akran),
Tel +234 8023037743, +234 8052160352, +234 8099413717
Email: remabenscientific@gmail.com, info@remabenscientific.com remabenscientific@yahoo.com,
Website: www.remabenscientific.com



CERTIFICATE OF ANALYSIS

(Institute of Public Analysts of Nigeria, IPAN Act CAP I.16 LFN 2004, formerly Decree 100 of 1992)

Page 1 of 1

Lab. Sample Ref No: DASCO/07/11/2018/1253/347/1/17144

Certificate No: 0017144

Name of Client: DASCO ENGINEERING IND. NIG. LTD

Address: 3, AKANNI DOHERTY STR, OBA AKRAN, IKEJA, LAGOS

Laboratory Environmental Conditions: Humidity, %: 55 Temperature, oC: 23 COA Version 1 dated 13/11/18

Sample Name/Label: WATER SAMPLE "I", 07/11/18

Sample Type : UNPACKAGED DRINKING WATER QUALITY (NIS 554:2015)

Date Received in Lab: 07-Nov-18 Batch No: --

Date Analysed in Lab: 07-13/11/18

I, BENJAMIN A. MIACHI, the undersigned Registered PUBLIC ANALYST No: 00329, of REMABEN SCIENTIFIC SERVICES LTD, do hereby certify that on 07/11/2018 a sample marked/labelled as WATER SAMPLE "I", 07/11/18, Batch No: --, Net Content: 1.5L; was submitted to our Laboratory by you (the Customer) as a sample of UNPACKAGED DRINKING WATER QUALITY (NIS 554:2015) for analysis. Our Laboratory findings are stated hereunder:

PHYSICAL AND CHEMICAL ANALYSIS:

Tests performed/Unit	Result	Uc	Limit	Test Method
GENERAL APPEARANCE	Clear		Clear	Visual
ODOUR	Unobjectionable		Unobjectionable	Sensory evaluation
COLOUR (after filtration), TCU	0		15max.	APHA 2120 B
pH, @25 oC	5.44		6.5 - 8.5	APHA 4500-H+ B
CONDUCTIVITY, microSiemens/cm	516.0		1,000max.	APHA 2510 B
TURBIDITY, NTU	0		5max.	APHA 2130 B
TOTAL HARDNESS-EDTA, mg/L	38.3		150max.	APHA 2340 C
TASTE	Unobjectionable		Unobjectionable	Sensory
TEMPERATURE, oC	27.8		Ambient	APHA 2550 B
TOTAL ALKALINITY(as HCO ₃),mg/L	14.8		200max.	APHA 2320 B
TOTAL DISSOLVED SOLIDS, mg/L	258.0		500max.	ASTM D5907-03
TOTAL SOLIDS, mg/L	283.7		Not Stated	APHA 2540 B
FREE RESIDUAL CHLORINE,mg/L	N.D		0.2-0.25	APHA 4500-Cl B
FREE CARBONDIOXIDE, mg/L	95		50max.	APHA 4500-CO ₂ B
AMMONIA (as N), mg/L	5.9		0.05max.	APHA 4500-NH ₃ B
CHLORIDE (as Cl), mg/L	95.2		250max.	APHA 4500-Cl- B
NITRITE (as NO ₂), mg/L	0.33		0.2max.	APHA 4500-NO ₂ B
NITRATE (as NO ₃), mg/L	11.4		50max.	APHA 4500-NO ₃ B
SILICA (Reactive, as SiO ₂), mg/L	9.0		40max.	APHA 4500-SiO ₂ B
CHROMIUM (Hexavalent), mg/L	0.001		0.05max.	APHA 3500-Cr B
ARSENIC (as As), mg/L	N.D		0.01max.	ASTM D2972A
CALCIUM (as Ca), mg/L	15.3		75max.	APHA 3500-Ca B
TOTAL IRON (as Fe), mg/L	N.D		0.3max.	APHA 3500-Fe B
COPPER (as Cu), mg/L	0.02		1.0max.	ASTM D1688A
LEAD (as Pb), mg/L	N.D		0.01max.	ASTM D3559
SULPHATE (as SO ₄), mg/L	4.7		100max.	APHA 4500-SO ₄ B
CADMIUM (as Cd), mg/L	N.D		0.003max.	ASTM D3557
MANGANESE (as Mn), mg/L	N.D		0.2max.	ASTM D858-02
MAGNESIUM (as Mg), mg/L	5.6		20max.	APHA 3500-Mg B
SALINITY, mg/L	201.9		480max.	APHA 2520 C
SODIUM (as Na), mg/L	61.7		200max.	APHA 3500-Na B
HYDROGEN SULPHIDE (H ₂ S), mg/L	N.D		0.05max.	APHA 4500-S F
MINERAL OIL, mg/L	N.D		0.003max.	APHA 5520 B
PHENOL COMPOUNDS, mg/L	N.D		0.001max.	APHA 5530 D
DETERGENTS (as Lauryl SO ₄), mg/L	N.D		0.01max.	APHA 5540 C
ZINC (as Zn), mg/L	0.14		3max.	ASTM D1691A
PHOSPHATE (as PO ₄), mg/L	0.87		Not Stated	APHA 4500-P C

MICROBIAL EXAMINATION:

Microbial Group	Result	Unit	Limit	Test Method
E.Coli	0	CFU/ml	0	APHA 9221E
Total Coliforms	0	CFU/ml	0	APHA 9222B
Faecal Streptococci	0	CFU/ml	0	APHA 9213B
Staphylococcus A.	0	CFU/ml	0	APHA 9213B
Salmonella	Absent	in 25ml	Absent	APHA 9260B
Shigella	Absent	in 25ml	Absent	APHA 9260E
Vibrio	0	CFU/ml	0	APHA 9260H
Clostridium p.	0	CFU/ml	0	APHA 92221D
Klebsiella aerogenes	0	CFU/ml	0	APHA 9222F
Pseudomonas a.	0	CFU/ml	0	APHA 9213E
Yeast/mould	0	CFU/ml	0	APHA 9610B
Aerobic Plate Count	19	CFU/ml	100max.	APHA 9215B

Abbreviations: N.D = Not Detected, N.S = Not Stated
APHA = American Public Health Association (22nd Edition)
AOAC = Association of Official Analytical Chemists (AOAC Int'l)
ASTM = American Society for Testing and Materials
UC = Uncertainty of Measurement (K=2)

COMMENTS/REMARKS

This Lab report is issued according to the requirements of ISO/IEC 17025:2005 standard, accreditation body and traceability to SI Units (TP 5.10.2). This Report cannot be reproduced except by written approval of the Lab Director. Results and comments of this analysis are advisory only, the customer is responsible for the sampling, the validity of the data may be impaired by a non-representative sample.

- The pH value, 5.44, falls below the Nigerian Industrial Standard (NIS 554:2015) acceptable range of 6.5-8.5 for drinking water.
- The results of microbial examination is in conformity with Nigerian Standard for Drinking Water Quality (NIS 554:2015) maximum permitted levels for unpackaged drinking water from privately owned drinking water systems and used solely for the family residence or food processing by food manufacturers.
- Appropriate correction of pH via dosing of soda ash and disinfection/chlorination are considered necessary.



Lab Analyst: Akinmiji O.R. Akinmiji
Sign/date: 13 Nov 18
As witness my hand and issued on this: 13 Nov 18

Approved by: MIACHI Benjamin A. (Lab. Director)
INSTITUTE OF PUBLIC ANALYSTS OF NIGERIA
(Established by Decree No. 100 of 1992)
Practice Licence No. 00329
Signature: [Signature]
Date: 13/11/18