

FEDERAL MINISTRY OF HEALTH

PORT HEALTH (QUARANTINE) SERVICES

RIVERS STATE

P.M.B. NO

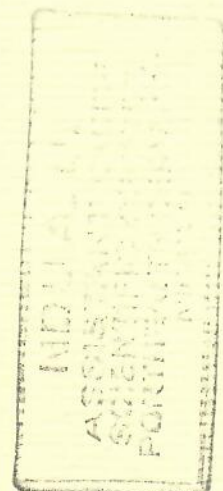
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Date: 29/12/2019

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Ref. No: PH/LAB/19/0322



WATER ANALYSIS RESULT/CERTIFICATION

- A. Types of Water - Fresh Water Sample
B. Source of sample - TMC ZION
C. Aim of Analysis - To Determine Portability

RESULT:-

1. PHYSICAL CHARACTERISTICS

- Colour - Colourless
Taste - Unobjectionable
Odour - Odourless

2. PHYSIO CHEMICAL CHARATERISTICS

Physico-chemical Parameters	Units	Analytical Method	Result values	W.H.O Guideline Values
Colour	TCU	APHA 2120B	9.68	<15.00
Turbidity	NTU	APHA 2130B	3.92	<5.00
Conductivity	Us/cm	APHA 2510-B	278.00	0-1000
Nitrate (NO ₃)	Mg/L	APHA 418CDR2010	9.01	0-45
Total Iron (Fe ²⁺)	Mg/L	ASTM D1068	0.17	0 - 0.30
Copper (Cu ²⁺)	Mg/L	ASTM D1688	31	0-1.00
pH	-	APHA 4500HB	7.20	6.50-8.50
Free Chlorine	Mg/L	APHA 4500-CLF	0.46	0-0.30
Chromium (Cr ⁶⁺)	Mg/L	ASTM D1687	ND	0-0.05
Fluoride (F ⁻)	Mg/L	APHA 4500-FP	ND	0-1.5
Chloride (Cl ⁻)	Mg/L	APHA 45100-B	73.30	0.250
Residual Chlorine	Mg/L	APHA 4500-CLF	<0.03	0-0.30
Total Alkalinity	Mg/L CaCO ₃	APHA 2091-B	80.05	0-250

Bicarbonate (HCO_3^-)	Mg/L	APHA 2320-B	10.80	0-250
Lead (Pb)	Mg/L	ASTM D3559	<0.2	<0.5
Sulphate (SO_4^{2-})	Mg/L	ASTM 516DR/2010	22.97	0-70
Manganese (Mn^{2+})	Mg/L	ASTM D358	<0.001	<0.5
Total hardness	Mg/L CaCO_3	APHA 2340-C	20.03	0-200
Calcium hardness	Mg/L	APHA 2340-D	4.30	0-75
Magnesium hardness	Mg/L	APHA 2340-E	5.01	0-50
Total suspended solids	Mg/L	APHA 2540-D	<0.21	0-30
Total dissolved solids	Mg/L	APHA 2540-C	140.00	0-500
Total Acidity	Mg/L CaCO_3	APHA 2044-A	0.01	0-250
Salinity	Mg/L	APHA 45100-B	136.05	0-5000

3. MICROBIAL / BACTERIOLOGICAL CHARACTERISTICS

CULTURE MEDIA USED: MacConkey Broth, EMB Agar, Sabouraud Agar, Nutrient Agar.

MACROSCOPY: Colourless, Odorless, Tasteless, with no deposit on standing

S/N	PARAMETERS	UNIT	ANALYTICAL METHODS	ANALYTICAL RESULT	WHO LIMIT
C	MICROBIOLOGICAL PARAMETERS				
1	TOTAL COLIFORM BACTERIA COUNT AT 37°C	MPN/100ml	APHA 9221B	Absent	0-5
2	TOTAL HETEROPHIC BACTERIA COUNT (THBC) AT 37°C	CFU/100ml	APHA 9221D	1	0-100
3	TOTAL FILAMENTOUS FUNGAL COUNT AT 37°C	CFU/100ml	ASTM D5465-93	Absent	<1

Klebsiella aerogenes, CFU/ml	Absent	0
Legionella, CFU/ml	Absent	0
Salmonella Typhi CFU/ml	Absent	0

REMARKS:

All parameters analyzed fall with W.H.O standard for portable water.

Water is therefore good for drinking and other domestic uses.

This analysis is in accordance with International Health Regulations and Nigerian Quarantine Acts. And it valid for six (6) months.

