

Water Quality Analysis Fee

Parameter	Test Method	Reference	Fee (Baht)
<b>Physical Analysis</b>			
Apparent Color	Visual Comparison Method	APHA,AWWA,WEF 2120 B.	100
True Color	Spectrophotometric Method	APHA,AWWA,WEF 2120 C.	100
Conductivity	Electrical Conductivity Method	APHA,AWWA,WEF 2510 B.	100
pH	Electrometric Method	APHA,AWWA,WEF 4500-H <sup>+</sup> B.	100
Turbidity	Nephelometric Method	APHA,AWWA,WEF 2130 B.	100
Temperature	Electrometric Method	APHA,AWWA,WEF 2550 B.	50
<b>Chemical Analysis</b>			
Alkalinity (P)	Titration Method	APHA,AWWA,WEF 2320 B.	200
Alkalinity (Total) as calciumcarbonate	Titration Method	APHA,AWWA,WEF 2320 B.	200
Hardness (Total) as calciumcarbonate	EDTA Titrimetric Method	APHA,AWWA,WEF 2340 C.	200
Hardness (Carbonate)	EDTA Titrimetric Method	APHA,AWWA,WEF 2340 C.	200
Hardness (nonCarbonate)	EDTA Titrimetric Method	APHA,AWWA,WEF 2340 C.	200
Chloride (Cl <sup>-</sup> )	Argentometric Method	APHA,AWWA,WEF 4500-Cl <sup>-</sup> B.	200
Sulphate (SO <sub>4</sub> <sup>2-</sup> )	Turbidimetric Method	APHA,AWWA,WEF 4500-SO <sub>4</sub> <sup>2-</sup> E.	200
Nitrate	Cadmium Reduction Method	APHA,AWWA,WEF 4500-NO <sub>3</sub> <sup>-</sup> E.	300
Nitrite	Colorimetric Method	APHA,AWWA,WEF 4500-NO <sub>2</sub> <sup>-</sup> B.	200
Fluoride (F)	SPADNS Method	APHA,AWWA,WEF 4500-F <sup>-</sup> D.	200
Calcium (Ca)	EDTA Titrimetric Method	APHA,AWWA,WEF 3500-Ca B.	200
Magnesium (Mg)	Calculation Method	APHA,AWWA,WEF 3500-Mg B.	200
Iron (Fe)	Phenanthroline Method	APHA,AWWA,WEF 3500-Fe B.	300
	Thioglycolic Method	In-house method	300
Manganese (Mn)	Persulfate Method	APHA,AWWA,WEF 3500-Mn B.	300
Total Solids (TS)	Total Solids Dried at 103-105 °C	In-house method based on APHA,AWWA,WEF 2540 B.	200
Total Dissolved Solids (TDS)	Total Dissolved Solids Dried at 180 °C	In-house method based on APHA,AWWA,WEF 2540 C.	200
Total Suspended Solids (TSS)	Total Suspended Solids Dried at 103-105 °C	APHA,AWWA,WEF 2540 D.	200
Ammonia nitrogen	Phenate Method	APHA,AWWA,WEF 4500-NH <sub>3</sub> F.	600
DO	Azide Modification Method	APHA,AWWA,WEF 4500-O C.	300
OC	Permanganate Method	In-house method	400

### Water Quality Analysis Fee

Parameter	Test Method	Reference	Fee (Baht)
<b>Heavy Metal Analysis</b>			
Copper (Cu)	Atomic Absorption Spectrometry (Flame)	In-house method based on APHA,AWWA,WEF 3111 B.	500
Zinc (Zn)	Atomic Absorption Spectrometry (Flame)	In-house method based on APHA,AWWA,WEF 3111 B.	500
Cadmium (Cd)	Atomic Absorption Spectrometry (Electrothermal)	In-house method based on APHA,AWWA,WEF 3113 B.	500
Chromium (Cr) Total	Atomic Absorption Spectrometry (Electrothermal)	In-house method based on APHA,AWWA,WEF 3113 B.	500
Lead (Pb)	Atomic Absorption Spectrometry (Electrothermal)	In-house method based on APHA,AWWA,WEF 3113 B.	500
<b>Microbiological Analysis</b>			
Heterotrophic Bacteria	Pour Plate Method	APHA,AWWA,WEF 9215 B.	300
Total Coliform Bacteria	Multiple Tube Fermentation Technique	APHA,AWWA,WEF 9221 B.	300
	Present-Absent Test	APHA,AWWA,WEF 9221 D.	300
Fecal Coliform Bacteria	Fecal Coliform Test (EC Medium)	APHA,AWWA,WEF 9221 E.	300
<i>E. coli</i>	Fluorogenic Substrate Test	APHA,AWWA,WEF 9221 F.	300
<i>Vibrio cholerae</i>	Biochemical Test (API Test Kit)	Biochemical Test (API Test Kit)	1,500
<i>Salmonella</i> spp.	Biochemical Test (API Test Kit)	Biochemical Test (API Test Kit)	1,500
<i>Shigella</i> spp.	Biochemical Test (API Test Kit)	Biochemical Test (API Test Kit)	1,500
<i>Staphylococcus aureus</i>	<i>Staphylococcus aureus</i> Test	APHA,AWWA,WEF 9213 B. 6.	1,500
<b>Other</b>			
Strength of Chlorine	Iodometric Method	APHA,AWWA,WEF 4500-Cl B.	500
Free residual Chlorine	DPD Colorimetric Method	APHA,AWWA,WEF 4500-Cl G.	150
Total Organic Carbon (TOC)	High Temperature Combustion Method	In-house method based on APHA,AWWA,WEF 5310 B.	2,000
Trihalomethanes (THMs)	Calculation Method	Guidelines for Drinking-water Quality 4 <sup>th</sup> ed.	2,000
- chloroform	Gas Chromatography with Electron Capture Detection (ECD)	In-house method based on Gas Chromatography	
- bromodichloromethane	Gas Chromatography with Electron Capture Detection (ECD)	In-house method based on Gas Chromatography	
- dibromochloromethane	Gas Chromatography with Electron Capture Detection (ECD)	In-house method based on Gas Chromatography	
- bromoform	Gas Chromatography with Electron Capture Detection (ECD)	In-house method based on Gas Chromatography	

**Remark**

Test method may be updated according to ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories.

## Water Analysis Package

### Package 1 Physical-Chemical Analysis

No.	Parameter	Fee (Baht)
	<b>Physical Analysis</b>	
1	color	100.00
2	Conductivity	100.00
3	pH	100.00
4	Turbidity	100.00
5	Temperature	50.00
	<b>Chemical Analysis</b>	
6	Alkalinity (P)	200.00
7	Alkalinity (Total) as calciumcarbonate	200.00
8	Hardness (Total) as calciumcarbonate	200.00
9	Hardness (Carbonate)	200.00
10	Hardness (nonCarbonate)	200.00
11	Chloride (Cl <sup>-</sup> )	200.00
12	Sulphate (SO <sub>4</sub> <sup>2-</sup> )	200.00
13	Nitrate	300.00
14	Nitrite	200.00
15	Fluoride (F)	200.00
16	Calcium (Ca)	200.00
17	Magnesium (Mg)	200.00
18	Iron (Fe)	300.00
19	Manganese (Mn)	300.00
20	Total Solids (TS)	200.00
21	Total Dissolved Solids (TDS)	200.00
	Total	3,950.00

21 Parameters (Total) 3,950.00 Baht

Package 1 (30% Discount) 2,700.00 Baht

Package 1 (7% VAT) 2,889.00 Baht

### Package 2 Microbiological Analysis

No.	Parameter	Fee (Baht)
1	Heterotrophic Bacteria	300.00
2	Total Coliform Bacteria	300.00
3	<i>E. coli</i>	300.00
	Total	900.00

3 Parameters (Total) 900.00 Baht

Package 2 (Discount) 800.00 Baht

Package 2 (7% VAT) 856.00 Baht

### Package 3 Physical-Chemical and Microbiological Analysis (Package 1+2)

24 Parameters (Total) 4,850.00 Baht

Package 3 (Discount) 3,500.00 Baht

Package 3 (7% VAT) 3,745.00 Baht

### Package 4 Primary Water Quality Analysis

No.	Parameter	Fee (Baht)
1	Turbidity	100.00
2	pH	100.00
3	Conductivity	100.00
4	Total Dissolve Solid (TDS)	200.00
5	Color	100.00
6	<i>E. coli</i>	300.00
	Total	900.00

#### Recommendation

1. For filtered water, total hardness analysis should be added to the package.
2. For water supply system in the building, Iron (Fe) analysis should be added to the package
3. For water supply tank , coliform bacteria analysis should be added to the package.

6 Parameters 900.00 Baht

Package 4 (7% VAT) 963.00 Baht

### Package 5 New Pipe Placing Parameters

No.	Parameter	Fee (Baht)
1	Turbidity	100.00
2	pH	100.00
3	Conductivity	100.00
4	Total Dissolve Solid (TDS)	200.00
5	Color	100.00
6	Iron	300.00
7	Total Coliform	300.00
8	<i>E. coli</i>	300.00
9	Free residual Chlorine	150.00
	Total	1,650.00

#### Recommendation :

Water quality must be analyzed after chlorination.

9 Parameters 1,650.00 Baht

Package 5 (7% VAT) 1,765.50 Baht

### Package 6 Heavy Metal Analysis

No.	Parameter	Fee (Baht)
1	Copper (Cu)	500.00
2	Zinc (Zn)	500.00
3	Cadmium (Cd)	500.00
4	Chromium (Cr) Total	500.00
5	Lead (Pb)	500.00
	Total	2,500.00

5 Parameters 2,500.00 Baht

Package 6 (7% VAT) 2,675.00 Baht

## Other Fees

Item	Fee
<b>1. Analysis Report</b> Regular report within 12 workdays Urgent analysis report within 7 workdays Copy of analysis report	Regular rate 3 Times the regular rate 200 Baht/Copy
<b>2. Sample Collection Service by MWA</b> 1 Sampling cost / location More than 1 sample in the same location, each additional charge	500 Baht 50 Baht