



Ref No. : 0303/16046

CERTIFICATE OF TESTING LABORATORY ACCREDITATION

This is to certify that

*Laboratory of Water Analysis Center Co., Ltd.
1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210*

has successfully undergone assessment according to ISO/IEC 17025 : 2017
and under the Bureau of Laboratory Accreditation, Department of Science Service
for the requirements, regulations and criteria for the competence of testing laboratories

Accreditation Number TESTING - 0029

The scope of accreditation is as annexed hereto

Issue date : *7th November 2019*

Expired date : *6th November 2022*

Signature : 

(Mrs. Pochaman Tagheen)

Director of Bureau of Laboratory Accreditation

Bureau of Laboratory Accreditation, Department of Science Service,
Ministry of Higher Education, Science, Research and Innovation

Scope of Testing Laboratory Accreditation

Laboratory Name : Laboratory of Water Analysis Center Co., Ltd.

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Changwat Phra Nakhon Si Ayutthaya 13210

Accreditation Number : Testing - 0029

Laboratory Status : Permanent Site Temporary Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1	Bottled drinking water	- Chloride 6 mg/dm^3 to $1\,000 \text{ mg/dm}^3$ - Total Hardness (Calculated as CaCO_3) 5 mg/dm^3 to $2\,000 \text{ mg/dm}^3$ - Total Solids at $103 \text{ }^\circ\text{C}$ to $105 \text{ }^\circ\text{C}$ 25 mg/dm^3 to $4\,000 \text{ mg/dm}^3$	In - house method : TM 008 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 4500 - Cl ⁻ B In - house method : TM 009 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 2340 C In - house method : TM 015 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 2540 B

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1 (cont.)	Bottled drinking water	- Manganese 0.05 mg/dm ³ to 5 mg/dm ³ - Iron 0.10 mg/dm ³ to 5 mg/dm ³	In - house method : TM 040 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 3111 B
2	Water	- pH 6.0 to 10.0 - Total Suspended Solids at 103 °C to 105 °C 10 mg/dm ³ to 1 000 mg/dm ³	In - house method : TM 001 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 4500 - H ⁺ B In - house method : TM 016 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 2540 D

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2 (cont.)	Water	- Total Dissolved Solids at 180 °C 25 mg/dm ³ to 4 000 mg/dm ³ - Cadmium 0.05 mg/dm ³ to 0.9 mg/dm ³ - Copper 0.05 mg/dm ³ to 5 mg/dm ³ - Zinc 0.05 mg/dm ³ to 5 mg/dm ³ - Chromium 0.05 mg/dm ³ to 5 mg/dm ³	In - house method : TM 017 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 2540 C In - house method : TM 040 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 3111 B

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2 (cont.)	Water	- Nickel 0.10 mg/dm ³ to 4 mg/dm ³ - Manganese 0.05 mg/dm ³ to 5 mg/dm ³ - Lead 0.10 mg/dm ³ to 2 mg/dm ³ - Iron 0.10 mg/dm ³ to 5 mg/dm ³ - Water soluble silica (Calculated as SiO ₂) 1.1 mg/dm ³ to 26 mg/dm ³	In - house method : TM 040 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 3111 B In - house method : TM 030 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 4500-SiO ₂ C

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2 (cont.)	Water	- Chloride 6 mg/dm ³ to 1 000 mg/dm ³ - Total Hardness (Calculated as CaCO ₃) 5 mg/dm ³ to 2 000 mg/dm ³ - BOD 2 mg/dm ³ to 500 mg/dm ³	In - house method: TM 008 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 4500-Cl ⁻ B In - house method : TM 009 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 2340 C In - house method : TM 041 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 5210 B

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2 (cont.)	Water	- COD 40 mg/dm ³ to 200 mg/dm ³ - Total Kjeldahl Nitrogen 5 mg/dm ³ to 200 mg/dm ³ - Oil and grease 2 mg/dm ³ to 100 mg/dm ³	In - house method : TM 014 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 5220 C In - house method : TM 023 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 4500-NH ₃ C and 4500-N _{org} B In - house method : TM 020 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 5520 D

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2 (cont.)	Water	- Total Solids at 103 °C to 105 °C 25 mg/dm ³ to 4 000 mg/dm ³ - Selenium 5 µg/dm ³ to 50 µg/dm ³	In - house method : TM 015 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 2540 B In - house method : TM 038 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 3114 C
3	Wastewater	- pH 4.0 to 10.0	In - house method : TM 001 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 4500 - H ⁺ B

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3 (cont.)	Wastewater	- Total Suspended Solids at 103 °C to 105 °C 10 mg/dm ³ to 1 000 mg/dm ³ - Total Dissolved Solids at 180 °C 50 mg/dm ³ to 4 000 mg/dm ³ - Cadmium 0.05 mg/dm ³ to 0.9 mg/dm ³ - Copper 0.05 mg/dm ³ to 5 mg/dm ³	In - house method : TM 016 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 2540 D In - house method : TM 017 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 2540 C In - house method : TM 040 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 3111 B

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3 (cont.)	Wastewater	- Zinc 0.05 mg/dm ³ to 5 mg/dm ³ - Chromium 0.05 mg/dm ³ to 5 mg/dm ³ - Nickel 0.10 mg/dm ³ to 4 mg/dm ³ - Manganese 0.05 mg/dm ³ to 5 mg/dm ³ - Lead 0.10 mg/dm ³ to 2 mg/dm ³ - Iron 0.10 mg/dm ³ to 5 mg/dm ³	In - house method : TM 040 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 3111 B

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3 (cont.)	Wastewater	- Total Hardness (Calculated as CaCO ₃) 5 mg/dm ³ to 2 000 mg/dm ³	In - house method : TM 009 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 2340 C
		- BOD 4 mg/dm ³ to 7 000 mg/dm ³	In - house method : TM 041 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 5210 B
		- COD 40 mg/dm ³ to 3 000 mg/dm ³	In - house method : TM 014 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 5220 C

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3 (cont.)	Wastewater	- Total Kjeldahl Nitrogen 5 mg/dm^3 to 200 mg/dm^3 - Oil and Grease 2 mg/dm^3 to $1\,000 \text{ mg/dm}^3$ - Total Solids at $103 \text{ }^\circ\text{C}$ to $105 \text{ }^\circ\text{C}$ 25 mg/dm^3 to $4\,000 \text{ mg/dm}^3$	In - house method : TM 023 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 4500-NH ₃ C and 4500-N _{org} B In - house method : TM 020 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 5520 D In - house method : TM 015 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 2540 B

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3 (cont.)	Wastewater	- Selenium $5 \mu\text{g}/\text{dm}^3$ to $50 \mu\text{g}/\text{dm}^3$	In - house method : TM 038 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 3114 C

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4	Environmental noise	- Sound level Equivalent sound level $L_{eq,T}$ 30 dB (A) to 120 dB (A) Maximum sound level L_{max} 30 dB (A) to 120 dB (A)	In - house method : TM 201 based on ISO 1996-2 : 2007

Issue Date : 7th November 2019

Signature :



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