

Name of Laboratory	: Laboratory of S.P.S. Consulting Service Company Limited
Address	: 7 Soi Phahon Yothin 24, Phahon Yothin Road, Jompol, Chatuchak, Bangkok 10900
Accreditation Number	: Testing – 0054
Contact Person	: Miss Thanutporn Numtrakulpattana Phone : 02 939 4370 Fax : - E-mail : thanutporn.n@spscon.com
Initial Issue Date	: 22 nd June 2010
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Expired date	: 3 rd March 2030
Standard	: ISO/IEC 17025:2017
Reference No.	: 0303/2051

Scope of Testing Laboratory Accreditation

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Laboratory Status : ☒ Permanent ☐ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1	Water	- COD 40 mg/L to 20 000 mg/L - COD 10 mg/L to 50 mg/L - Total solids dried from 103 °C to 105 °C 10 mg/L to 10 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 5220 C Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 5220 B In - house method : T04 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2540 B

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1 (Cont.)	Water	- Sulfate 5 mg/L to 200 mg/L - Ammonia nitrogen 0.40 mg/L to 100 mg/L - Phosphate 0.04 mg/L to 10 mg/L	In - house method : T05 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-SO ₄ ²⁻ E In - house method : T19 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-NH ₃ C In - house method : T24 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-P E

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1 (Cont.)	Water	- Total phosphorus 0.01 mg/L to 3.27 mg/L - Color 5 ADMI to 500 ADMI - Mercury 0.001 mg/L to 0.05 mg/L	In - house method : T24 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-P E In - house method : T130 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2120 F In - house method : T34 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3112 B

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1 (Cont.)	Water	- Oil and grease 2.0 mg/L to 40.0 mg/L	In - house method : SPS T50 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 5520 D
2	Wastewater	- COD 40 mg/L to 20 000 mg/L - COD 10 mg/L to 50 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 5220 C Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 5220 B

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2 (Cont.)	Wastewater	- Total solids dried from 103 °C to 105 °C 10 mg/L to 10 000 mg/L - Sulfate 5 mg/L to 200 mg/L - Ammonia nitrogen 0.40 mg/L to 100 mg/L	In - house method : T04 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2540 B In - house method : T05 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-SO ₄ ²⁻ E In - house method : T19 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-NH ₃ C

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2 (Cont.)	Wastewater	- Phosphate 0.04 mg/L to 10 mg/L - Total phosphorus 0.01 mg/L to 3.27 mg/L - Color 5 ADMI to 500 ADMI - Mercury 0.001 mg/L to 0.05 mg/L	In - house method : T24 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-P E In - house method : T130 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2120 F In - house method : T34 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3112 B

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2 (Cont.)	Wastewater	- Oil and grease 2.0 mg/L to 40.0 mg/L	In - house method : SPS T50 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 5520 D
3	Seawater	- Total petroleum hydrocarbons 0.05 µg/L to 20 µg/L	In - house method : T87 based on Method of Seawater Analysis, 3 rd ed., 1998, page 467-477

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4	Air - Workplace air	- Benzene 0.14 µg/tube to 503 µg/tube - Ethylbenzene 0.14 µg/tube to 504 µg/tube - Toluene 0.14 µg/tube to 502 µg/tube - <i>o</i> -Xylene 0.14 µg/tube to 504 µg/tube - <i>m</i> -Xylene 0.14 µg/tube to 501 µg/tube - <i>p</i> -Xylene 0.14 µg/tube to 500 µg/tube	NIOSH Manual of Analytical Methods (NMAM), 4 th ed., March 2003, method 1501 (Exclude sampling)

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4 (Cont.)	Air - Emission from stationary sources	- Total suspended particulate 2 mg/filter to 2 000 mg/filter - Sulfur dioxide 5 mg/L to 1 200 mg/L	In - house method : T-WI 105 based on United States Environmental Protection Agency, 2000, Method 5, (Exclude sampling) United States Environmental Protection Agency, 2000, Method 6, (Exclude sampling)

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
4 (Cont.)	Air - Ambient air	Volatile organic compounds - Acrolein 0.02 µg/m ³ to 11 µg/m ³ - Acrylonitrile 0.02 µg/m ³ to 10 µg/m ³ - Benzene 0.03 µg/m ³ to 15 µg/m ³ - Benzyl chloride 0.05 µg/m ³ to 25 µg/m ³ - Bromomethane 0.04 µg/m ³ to 19 µg/m ³ - 1,3-Butadiene 0.02 µg/m ³ to 10 µg/m ³ - Carbon disulfide 0.03 µg/m ³ to 15 µg/m ³	United States Environmental Protection Agency, 2000, Method 6, (Include sampling)

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4 (Cont.)	Air - Ambient air	Volatile organic compounds - Carbon tetrachloride 0.06 µg/m ³ to 31 µg/m ³ - Chloroethane 0.03 µg/m ³ to 13 µg/m ³ - Chloroform 0.05 µg/m ³ to 24 µg/m ³ - Dichloromethane 0.03 µg/m ³ to 17 µg/m ³ - 1,2-Dibromoethane 0.08 µg/m ³ to 38 µg/m ³ - 1,4-Dichlorobenzene 0.06 µg/m ³ to 29 µg/m ³ - 1,2-Dichloroethane 0.04 µg/m ³ to 20 µg/m ³	United States Environmental Protection Agency, 2000, Method 6, (Include sampling)

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4 (Cont.)	Air - Ambient air	Volatile organic compounds - 1,2-Dichloropropane 0.05 µg/m ³ to 22 µg/m ³ - Pentane 0.03 µg/m ³ to 14 µg/m ³ - Tetrachloroethylene 0.07 µg/m ³ to 33 µg/m ³ - Trichloroethylene 0.05 µg/m ³ to 26 µg/m ³ - Toluene 0.04 µg/m ³ to 18 µg/m ³ - 1,1,2,2-Tetrachloroethane 0.07 µg/m ³ to 33 µg/m ³	United States Environmental Protection Agency, 2000, Method 6, (Include sampling)

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5	Environmental noise	Sound level - Equivalent sound level $L_{Aeq,T}$ 30 dB (A) to 120 dB (A) - Maximum sound level L_{Amax} 30 dB (A) to 120 dB (A)	- In - house method : W913 based on ISO 1996-1 : 2016 and - Notification of the Pollution Control Board, Method of measuring the background noise level, non nuisance period, the calculation of Nuisance level and record form of nuisance noise measurement, BE2565 (2022) - Notification of the Department of Industrial Works, Method of measuring nuisance period, noise level, 24-hour average sound level and maximum sound level from plant operation BE2567 (2024)

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
6	Workplace noise	Sound level - Equivalent sound level $L_{Aeq,T}$ 30 dB (A) to 120 dB (A) - Maximum sound level L_{Amax} 30 dB (A) to 120 dB (A)	- In - house method : W914 based on ISO 11202 : 2010 - Notification of Ministry of Industry, Safety Protection Measures in Factory Operations regarding working in environments, BE2546 (2003) - Notification of the Department of Labour Protection and Welfare, BE2561 (2018)

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