

Name of Laboratory : C.E.M. Technology (Thailand) Co., Ltd.  
Address : 219/43 Moo 12, Petchkasem Road., Tambon Omnoi,  
Amphoe Kathum Baen, Changwat Samut Sakhon 74130  
Accreditation Number : Testing - 0169  
Contact Person : Mr. Apichat sae-laung  
Phone : 02-441-7147-58  
Fax : 02-441-7176  
E-mail : cemtechnology@outlook.co.th  
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Expired date : 24<sup>th</sup> January 2025  
Standard : ISO/IEC 17025:2017  
Reference No. : 0303/14622

## 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	Air - Ambient air	- Total suspended particulate 10 mg/filter to 1 000 mg/filter  - Particulate matter (PM-10) 3 mg/filter to 800 mg/filter	In – house method : WP-AP-01 based on U.S. Environmental ProtectionAgency 40 CFR, method 50, Appendix B (Exclude sampling)  In – house method : WP-AP-02 based on U.S. Environmental ProtectionAgency 40 CFR, method 50, Appendix J (Exclude sampling)

Initial Issue Date 20<sup>th</sup> June 2018

Issue Number 3

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

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2	Noise in ambient and indoor environment	- Equivalent sound level $L_{eq,1 hr.}, L_{eq,24 hr.}$ 35 dB (A) to 120 dB (A)  - Maximum sound level $L_{max,1 hr.}, L_{max,24 hr.}$ 35 dB (A) to 120 dB (A)  - Minimum sound level $L_{min,1 hr.}, L_{min,24 hr.}$ 35 dB (A) to 120 dB (A)  - Percentile level 90 $L_{90,1 hr.}, L_{90,24 hr.}$ 35 dB (A) to 120 dB (A)	In - house method : WP-AP-20  based on notification of National Environment Board Issue 15

Initial Issue Date 20<sup>th</sup> June 2018

Issue Number 3

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3	Annoyance noise	- Sound level $L_{eq,T}$ 35 dB (A) to 120 dB (A)  - Noise level without annoyance $L_{eq,T}$ 35 dB (A) to 120 dB (A)  - Sound basic level $L_{90,T}$ 35 dB (A) to 120 dB (A)  - Annoyance level value 0 dB (A) to 85 dB (A)	In - house method : WP-AP-21 based on notification of Pollution Control Committee

Initial Issue Date 20<sup>th</sup> June 2018

Issue Number 3

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4	Noise in workplace	- Sound level $L_{eq,T hr}$ 35 dB (A) to 120 dB (A)  - Time weighted average (TWA) 35 dB (A) to 120 dB (A)	In - house method : WP-AP-22  based on notification of Department of Labour Protection and Welfare
5	Heat	- Wet Bulb Globe Temperature Indoor (WBGT <sub>in</sub> ) 13.0 °C to 38.0 °C  - Wet Bulb Globe Temperature Outdoor (WBGT <sub>out</sub> ) 27.0 °C to 34.0 °C	Notification of Department of Labour Protection and Welfare Published in the Royal Government Gazette, Volume 135 special part 57 D, date March 12 <sup>th</sup> , 2018

Initial Issue Date 20<sup>th</sup> June 2018

Issue Number 3

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6	Water	- pH 4.0 to 10.0	In - house method : WP-WW-03 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 <sup>rd</sup> ed., 2017, part 4500 - H <sup>+</sup> B
		- COD 20 mg/L to 500 mg/L	In - house method : WP-WW-08 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 <sup>rd</sup> ed., 2017, part 5220 D
		- Cadmium 0.20 mg/L to 4.00 mg/L	In - house method : WP-WW-01 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 <sup>rd</sup> ed., 2017, part 3111 B
		- Copper 0.20 mg/L to 4.00 mg/L	APHA, AWWA & WEF, 23 <sup>rd</sup> ed., 2017, part 3111 B

Initial Issue Date 20<sup>th</sup> June 2018

Issue Number 3

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
6 (cont.)	Water	<ul style="list-style-type: none"> <li>- Nickel 0.20 mg/L to 4.00 mg/L</li> <li>- Manganese 0.20 mg/L to 4.00 mg/L</li> <li>- Total dissolved solids dried at 180 °C 30 mg/L to 6 000 mg/L</li> <li>- Total suspended solids dried at 103 °C to 105 °C 10 mg/L to 1 000 mg/L</li> </ul>	<p>In - house method : WP-WW-01 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA &amp; WEF, 23<sup>rd</sup> ed., 2017, part 3111 B</p> <p>Standard Methods for the Examination of Water and Wastewater, APHA, AWWA &amp; WEF, 23<sup>rd</sup> ed., 2017, part 2540 C</p> <p>Standard Methods for the Examination of Water and Wastewater, APHA, AWWA &amp; WEF, 23<sup>rd</sup> ed., 2017, part 2540 D</p>

Initial Issue Date 20<sup>th</sup> June 2018

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
7	Wastewater	- pH 4.0 to 10.0  - COD 20 mg/L to 500 mg/L  - Cadmium 0.20 mg/L to 4.00 mg/L  - Copper 0.20 mg/L to 4.00 mg/L	In - house method : WP-WW-03 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 <sup>rd</sup> ed., 2017, part 4500 - H <sup>+</sup> B  In - house method : WP-WW-08 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 <sup>rd</sup> ed., 2017, part 5220 D  In - house method : WP-WW-01 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 <sup>rd</sup> ed., 2017, part 3111 B

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7 (cont.)	Wastewater	- Nickel 0.20 mg/L to 4.00 mg/L  - Manganese 0.20 mg/L to 4.00 mg/L  - Total dissolved solids dried at 180 °C 30 mg/L to 6 000 mg/L  - Total suspended solids dried at 103 °C to 105 °C 10 mg/L to 1 000 mg/L	In - house method : WP-WW-01  based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 <sup>rd</sup> ed., 2017, part 3111 B  Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 <sup>rd</sup> ed., 2017, part 2540 C  Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 <sup>rd</sup> ed., 2017, part 2540 D

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7 (cont.)	Wastewater	- Total Kjeldahl Nitrogen  6 mg/L to 500 mg/L	In - house method : WP-WW-16  based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 <sup>rd</sup> ed., 2017, part 4500-N <sub>org</sub> B

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