

Name of Laboratory : ALS Laboratory Group (Thailand) Co., Ltd. (Songkhla Branch)
Address : 114/1 Moo 8, Karnchanawanich Road, Tambon Ban Phru,
Amphoe Hat Yai, Changwat Songkhla 90250
Accreditation Number : Testing – 0166
Contact Person : Miss Yupaporn Chanpleng
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Initial Issue Date : 4th April 2018
Issue Date : 7th November 2023
Expired date : 16th June 2026
Standard : ISO/IEC 17025:2017
Reference No. : 0303/18184

Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd. (Songkhla Branch)
 Address : 114/1 Moo 8, Karnchanawanich Road, Tambon Ban Phru, Amphoe Hat Yai,
 Changwat Songkhla 90250
 Accreditation Number : Testing - 0166
 Laboratory Status : Permanent Site Temporary Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1	Water - Non-potable water - Surface water - Ground water - Rain water	- <i>Clostridium perfringens</i> Detected or not detected/100 mL - Coliforms CFU/100 mL - Coliforms MPN/100 mL Detected or not detected/100 mL	In - house method : STM No.14-017 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9260 A, 9274 B and FDA Bacteriological Analytical Manual online, 2001, Chapter 16 Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9222 B Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1 (cont.)	Water - Non-potable water - Surface water - Ground water - Rain water	- <i>Escherichia coli</i> CFU/100 mL - <i>Escherichia coli</i> MPN/100 mL Detected or not detected/100 mL - <i>Enterococcus</i> spp. CFU/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9222 H Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B, F Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 9230 C

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1 (cont.)	Water - Non-potable water - Surface water - Ground water - Rain water	- Fecal Coliforms MPN/100 mL Detected or not detected/100 mL - Fecal <i>Streptococcus</i> CFU/100 mL - <i>Salmonella</i> spp. Detected or not detected/100 mL - Standard Plate Count CFU/mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B, E Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 9230 C ISO 19250 : 2010 Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9215 B

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1 (cont.)	Water - Non-potable water - Surface water - Ground water - Rain water	- <i>Staphylococcus aureus</i> CFU/100 mL Detected or not detected/100 mL - Aluminium 0.005 mg/L to 15 mg/L - Antimony 0.0005 mg/L to 15 mg/L - Arsenic 0.0005 mg/L to 15 mg/L - Barium 0.0005 mg/L to 15 mg/L - Beryllium 0.0005 mg/L to 15 mg/L	In - house method : STM No.14-039 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9213 B and FDA Bacteriological Analytical Manual online, 2016, Chapter 12 Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1 (cont.)	Water - Non-potable water - Surface water - Ground water - Rain water	- Boron 0.005 mg/L to 15 mg/L - Cadmium 0.0005 mg/L to 15 mg/L - Calcium 0.05 mg/L to 1 000 mg/L - Chromium 0.0005 mg/L to 15 mg/L - Cobalt 0.0005 mg/L to 15 mg/L - Copper 0.0005 mg/L to 15 mg/L - Iron 0.005 mg/L to 15 mg/L - Lead 0.0005 mg/L to 15 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1 (cont.)	Water - Non-potable water - Surface water - Ground water - Rain water	- Magnesium 0.05 mg/L to 1 000 mg/L - Manganese 0.0005 mg/L to 15 mg/L - Mercury 0.0005 mg/L to 0.1 mg/L - Molybdenum 0.0005 mg/L to 15 mg/L - Nickel 0.0005 mg/L to 15 mg/L - Phosphorus 0.05 mg/L to 1 000 mg/L - Potassium 0.05 mg/L to 1 000 mg/L - Selenium 0.0005 mg/L to 15 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1 (cont.)	Water - Non-potable water - Surface water - Ground water - Rain water	- Silver 0.0005 mg/L to 15 mg/L - Sodium 0.05 mg/L to 1 000 mg/L - Strontium 0.0005 mg/L to 15 mg/L - Tellurium 0.0005 mg/L to 15 mg/L - Thallium 0.0005 mg/L to 15 mg/L - Tin 0.0005 mg/L to 15 mg/L - Titanium 0.005 mg/L to 15 mg/L - Vanadium 0.0005 mg/L to 15 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1 (cont.)	Water - Non-potable water - Surface water - Ground water - Rain water	- Zinc 0.005 mg/L to 15 mg/L - Mercury 0.0005 mg/L to 0.1 mg/L - Free chlorine 0.1 mg/L to 10 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F In - house method : STM No.13-036 based on United State Environmental Protection Agency, 2007, EPA, method 7473 Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-Cl (F)

Initial Issue Date 4th April 2018

Issue Number 6

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1 (cont.)	Water - Non-potable water - Surface water - Ground water - Rain water	- pH 4.0 to 10.0 - Total dissolved solids dried at 180 °C 5 mg/L to 5 000 mg/L - Total hardness (Calculated as CaCO ₃) 1 mg/L to 1 500 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-H ⁺ B Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2540 C Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2340 C

Initial Issue Date 4th April 2018

Issue Number 6

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1 (cont.)	Water - Non-potable water - Surface water - Ground water - Rain water	- Total solids dried from 103 °C to 105 °C 5 mg/L to 5 000 mg/L - Turbidity 0.1 NTU to 1 000 NTU	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2540 B Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2130 B

Initial Issue Date 4th April 2018

Issue Number 6

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1 (cont.)	Water - Non-potable water	- Fecal Coliforms CFU/100 mL - <i>Vibrio cholerae</i> Detected or not detected/100 mL - <i>Vibrio parahaemolyticus</i> Detected or not detected/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9222 D Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9278 A, B

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1 (cont.)	Water - Surface water - Ground water - Rain water	- Hexavalent chromium 0.01 mg/L to 400 mg/L - BOD 2 mg/L to 5 000 mg/L - COD 5 mg/L to 20 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3500-Cr (B) Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 5210 B, 4500-O G Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 5220 D

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1 (cont.)	Water - Surface water - Ground water - Rain water	- Total suspended solids dried from 103 °C to 105 °C 5 mg/L to 5 000 mg/L - Oil & Grease 3 mg/L to 200 mg/L - Phenol 0.01 mg/L to 10 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2540 D Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 5520 B *** Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 5530 D

*** Change of test method

Initial Issue Date 4th April 2018

Issue Number 6

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2	Wastewater	- Coliforms MPN/100 mL Detected or not detected/100 mL - <i>Escherichia coli</i> MPN/100 mL Detected or not detected/100 mL - Fecal Coliforms MPN/100 mL Detected or not detected/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B, F Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B, E

Initial Issue Date 4th April 2018

Issue Number 6

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2 (cont.)	Wastewater	- Standard Plate Count CFU/mL - Aluminium 0.005 mg/L to 15 mg/L - Antimony 0.0005 mg/L to 15 mg/L - Arsenic 0.0005 mg/L to 15 mg/L - Barium 0.0005 mg/L to 15 mg/L - Beryllium 0.0005 mg/L to 15 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9215 B Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
2 (cont.)	Wastewater	- Boron 0.005 mg/L to 15 mg/L - Cadmium 0.0005 mg/L to 15 mg/L - Calcium 0.05 mg/L to 1 000 mg/L - Chromium 0.0005 mg/L to 15 mg/L - Cobalt 0.0005 mg/L to 15 mg/L - Copper 0.0005 mg/L to 15 mg/L - Iron 0.005 mg/L to 15 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
2 (cont.)	Wastewater	- Lead 0.0005 mg/L to 15 mg/L - Magnesium 0.05 mg/L to 1 000 mg/L - Manganese 0.0005 mg/L to 15 mg/L - Mercury 0.0005 mg/L to 0.5 mg/L - Molybdenum 0.0005 mg/L to 15 mg/L - Nickel 0.0005 mg/L to 15 mg/L - Phosphorus 0.05 mg/L to 1 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
2 (cont.)	Wastewater	- Potassium 0.05 mg/L to 1 000 mg/L - Selenium 0.0005 mg/L to 15 mg/L - Silver 0.0005 mg/L to 15 mg/L - Sodium 0.05 mg/L to 1 000 mg/L - Strontium 0.0005 mg/L to 15 mg/L - Tellurium 0.0005 mg/L to 15 mg/L - Thallium 0.0005 mg/L to 15 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
2 (cont.)	Wastewater	- Tin 0.0005 mg/L to 15 mg/L - Titanium 0.005 mg/L to 15 mg/L - Vanadium 0.0005 mg/L to 15 mg/L - Zinc 0.005 mg/L to 15 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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2 (cont.)	Wastewater	- Mercury 0.0005 mg/L to 0.1 mg/L	In - house method : STM No.13-036 based on United State Environmental Protection Agency, 2007, EPA, method 7473
		- Hexavalent chromium 0.01 mg/L to 400 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3500-Cr (B)
		- BOD 2 mg/L to 5 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 5210 B, 4500-O G

Initial Issue Date 4th April 2018

Issue Number 6

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2 (cont.)	Wastewater	- COD 5 mg/L to 20 000 mg/L - Free chlorine 0.1 mg/L to 10 mg/L - pH 4.0 to 10.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 5220 D Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-Cl (F) Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-H ⁺ B

Initial Issue Date 4th April 2018

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2 (cont.)	Wastewater	- Total dissolved solids dried at 180 °C 100 mg/L to 20 000 mg/L - Total solids dried from 103 °C to 105 °C 50 mg/L to 20 000 mg/L - Total suspended solids dried from 103 °C to 105 °C 5 mg/L to 5 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2540 C Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2540 B Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2540 D

Initial Issue Date 4th April 2018

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2 (cont.)	Wastewater	- Oil & Grease 3 mg/L to 2 000 mg/L - Phenol 0.01 mg/L to 10 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 5520 B Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 5530 D

Initial Issue Date 4th April 2018

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3	Seawater	<p>- <i>Clostridium perfringens</i> Detected or not detected/100 mL</p> <p>- Coliforms MPN/100 mL Detected or not detected/100 mL</p> <p>- Coliforms CFU/100 mL</p>	<p>In - house method : STM No.14-017 based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA, WEF, 24th ed., 2023, part 9260 A, 9274 B and FDA Bacteriological Analytical Manual online, 2001, Chapter 16</p> <p>Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 9221 B</p> <p>Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 9222 B</p>

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3 (cont.)	Seawater	- <i>Escherichia coli</i> MPN/100 mL Detected or not detected/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B, F
		- <i>Escherichia coli</i> CFU/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9222 H
		- <i>Enterococcus</i> spp. CFU/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 9230 C

Initial Issue Date 4th April 2018

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
3 (cont.)	Seawater	- Fecal Coliforms MPN/100 mL Detected or not detected/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B, E
		- Fecal Coliforms CFU/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9222 D
		- Fecal <i>Streptococcus</i> CFU/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 9230 C
		- <i>Salmonella</i> spp. Detected or not detected/100 mL	ISO 19250 : 2010

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd. (Songkhla Branch)
 Address : 114/1 Moo 8, Karnchanawanich Road, Tambon Ban Phru, Amphoe Hat Yai,
 Changwat Songkhla 90250
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 Laboratory Status : Permanent Site Temporary Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
3 (cont.)	Seawater	- Standard Plate Count CFU/mL - <i>Staphylococcus aureus</i> Detected or not detected/100 mL - Hexavalent chromium 0.01 mg/L to 400 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9215 B In - house method : STM No.14-039 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9213 B and FDA Bacteriological Analytical Manual online, 2016, Chapter 12 Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3500-Cr (B)

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
4	Bottled drinking water	<p>- <i>Clostridium perfringens</i> Detected or not detected/100 mL</p> <p>- Coliforms CFU/100 mL</p> <p>- Coliforms MPN/100 mL Detected or not detected/100 mL</p>	<p>In - house method : STM No.14-017 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 9260 A, 9278 B and FDA Bacteriological Analytical Manual online, 2001, Chapter 16</p> <p>Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 9222 B</p> <p>Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 9221 B</p>

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
4 (cont.)	Bottled drinking water	- <i>Escherichia coli</i> CFU/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9222 H
		- <i>Escherichia coli</i> MPN/100 mL Detected or not detected/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B, F
		- <i>Enterococcus</i> spp. CFU/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 9230 C

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
4 (cont.)	Bottled drinking water	- Fecal Coliforms MPN/100 mL Detected or not detected/100 mL - Fecal <i>Streptococcus</i> CFU/100 mL - <i>Salmonella</i> spp. Detected or not detected/100 mL - Standard Plate Count CFU/mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B, E Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 9230 C ISO 19250 : 2010 Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9215 B

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
4 (cont.)	Bottled drinking water	<p>- <i>Staphylococcus aureus</i> CFU/100 mL Detected or not detected</p> <p>- <i>Vibrio cholerae</i> Detected or not detected</p> <p>- <i>Vibrio parahaemolyticus</i> Detected or not detected</p>	<p>In - house method : STM No.14-039 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 9213 B and FDA Bacteriological Analytical Manual online, 2016, Chapter 12</p> <p>Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 9278 A, B</p>

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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 Accreditation Number : Testing - 0166
 Laboratory Status : Permanent Site Temporary Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
4 (cont.)	Bottled drinking water	- Aluminium 0.005 mg/L to 15 mg/L - Antimony 0.0005 mg/L to 15 mg/L - Arsenic 0.0005 mg/L to 15 mg/L - Barium 0.0005 mg/L to 15 mg/L - Beryllium 0.0005 mg/L to 15 mg/L - Boron 0.005 mg/L to 15 mg/L - Cadmium 0.0005 mg/L to 15 mg/L - Calcium 0.05 mg/L to 1 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
4 (cont.)	Bottled drinking water	- Chromium 0.0005 mg/L to 15 mg/L - Cobalt 0.0005 mg/L to 15 mg/L - Copper 0.0005 mg/L to 15 mg/L - Iron 0.005 mg/L to 15 mg/L - Lead 0.0005 mg/L to 15 mg/L - Magnesium 0.05 mg/L to 1 000 mg/L - Manganese 0.0005 mg/L to 15 mg/L - Mercury 0.0005 mg/L to 0.1 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
4 (cont.)	Bottled drinking water	- Molybdenum 0.0005 mg/L to 15 mg/L - Nickel 0.0005 mg/L to 15 mg/L - Phosphorus 0.05 mg/L to 1 000 mg/L - Potassium 0.05 mg/L to 1 000 mg/L - Selenium 0.0005 mg/L to 15 mg/L - Silver 0.0005 mg/L to 15 mg/L - Sodium 0.05 mg/L to 1 000 mg/L - Strontium 0.0005 mg/L to 15 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
4 (cont.)	Bottled drinking water	- Tellurium 0.0005 mg/L to 15 mg/L - Thallium 0.0005 mg/L to 15 mg/L - Tin 0.0005 mg/L to 15 mg/L - Titanium 0.005 mg/L to 15 mg/L - Vanadium 0.0005 mg/L to 15 mg/L - Zinc 0.005 mg/L to 15 mg/L - Mercury 0.0005 mg/L to 0.1 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F In - house method : STM No.13-036 based on United State Environmental Protection Agency, 2007, EPA, method 7473

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
4 (cont.)	Bottled drinking water	- Free chlorine 0.1 mg/L to 10 mg/L - pH 4.0 to 10.0 - Total dissolved solids dried at 180 °C 5 mg/L to 2 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-Cl (F) Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-H ⁺ B Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2540 C

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
4 (cont.)	Bottled drinking water	- Total hardness (Calculated as CaCO ₃) 1 mg/L to 1 000 mg/L - Total solids dried from 103 °C to 105 °C 5 mg/L to 2 000 mg/L - Turbidity 0.1 NTU to 100 NTU	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2340 C Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2540 B Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2130 B

Initial Issue Date 4th April 2018

Issue Number 6

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

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
5	Drinking water	<p>- <i>Clostridium perfringens</i> Detected or not detected/100 mL</p> <p>- Coliforms MPN/100 mL Detected or not detected/100 mL</p> <p>- Coliforms CFU/100 mL</p>	<p>In - house method : STM No.14-017 based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 24th ed., 2023, part 9260 A, 9274 B and FDA Bacteriological Analytical Manual online, 2001, Chapter 16</p> <p>Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 9221 B</p> <p>Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 9222 B</p>

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
5 (cont.)	Drinking water	- <i>Escherichia coli</i> MPN/100 mL Detected or not detected/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B, F
		- <i>Escherichia coli</i> CFU/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9222 H
		- <i>Enterococcus</i> spp. CFU/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 9230 C

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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 Accreditation Number : Testing - 0166
 Laboratory Status : Permanent Site Temporary Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
5 (cont.)	Drinking water	- Fecal Coliforms MPN/100 mL Detected or not detected/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B, E
		- Fecal <i>Streptococcus</i> CFU/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 9230 C
		- <i>Salmonella</i> spp. Detected or not detected/100 mL	ISO 19250 : 2010
		- Standard Plate Count CFU/mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9215 B

Initial Issue Date 4th April 2018

Issue Number 6

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

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
5 (cont.)	Drinking water	- <i>Staphylococcus aureus</i> CFU/100 mL Detected or not detected/100 mL - <i>Vibrio cholerae</i> Detected or not detected/100 mL - <i>Vibrio parahaemolyticus</i> Detected or not detected	In - house method : STM No.14-039 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9213 B and FDA Bacteriological Analytical Manual online, 2016, Chapter 12 Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9278 A, B

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
5 (cont.)	Drinking water	- Aluminium 0.005 mg/L to 15 mg/L - Antimony 0.0005 mg/L to 15 mg/L - Arsenic 0.0005 mg/L to 15 mg/L - Barium 0.0005 mg/L to 15 mg/L - Beryllium 0.0005 mg/L to 15 mg/L - Boron 0.005 mg/L to 15 mg/L - Cadmium 0.0005 mg/L to 15 mg/L - Calcium 0.05 mg/L to 1 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
5 (cont.)	Drinking water	- Chromium 0.0005 mg/L to 15 mg/L - Cobalt 0.0005 mg/L to 15 mg/L - Copper 0.0005 mg/L to 15 mg/L - Iron 0.005 mg/L to 15 mg/L - Lead 0.0005 mg/L to 15 mg/L - Magnesium 0.05 mg/L to 1 000 mg/L - Manganese 0.0005 mg/L to 15 mg/L - Mercury 0.0005 mg/L to 0.1 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
5 (cont.)	Drinking water	- Molybdenum 0.0005 mg/L to 15 mg/L - Nickel 0.0005 mg/L to 15 mg/L - Phosphorus 0.05 mg/L to 1 000 mg/L - Potassium 0.05 mg/L to 1 000 mg/L - Selenium 0.0005 mg/L to 15 mg/L - Silver 0.0005 mg/L to 15 mg/L - Sodium 0.05 mg/L to 1 000 mg/L - Strontium 0.0005 mg/L to 15 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
5 (cont.)	Drinking water	- Free chlorine 0.1 mg/L to 10 mg/L - pH 4.0 to 10.0 - Total dissolved solids dried at 180 °C 5 mg/L to 2 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-Cl (F) Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-H ⁺ B Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2540 C

Initial Issue Date 4th April 2018

Issue Number 6

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Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
5 (cont.)	Drinking water	- Total hardness (Calculated as CaCO ₃) 1 mg/L to 1 000 mg/L - Total solids dried from 103 °C to 105 °C 5 mg/L to 2 000 mg/L - Turbidity 0.1 NTU to 100 NTU	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2340 C Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2540 B Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2130 B

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
6	Ice	- Aluminium 0.005 mg/L to 15 mg/L - Antimony 0.0005 mg/L to 15 mg/L - Arsenic 0.0005 mg/L to 15 mg/L - Barium 0.0005 mg/L to 15 mg/L - Beryllium 0.0005 mg/L to 15 mg/L - Boron 0.005 mg/L to 15 mg/L - Cadmium 0.0005 mg/L to 15 mg/L - Calcium 0.05 mg/L to 1 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
6 (cont.)	Ice	- Chromium 0.0005 mg/L to 15 mg/L - Cobalt 0.0005 mg/L to 15 mg/L - Copper 0.0005 mg/L to 15 mg/L - Iron 0.005 mg/L to 15 mg/L - Lead 0.0005 mg/L to 15 mg/L - Magnesium 0.05 mg/L to 1 000 mg/L - Manganese 0.0005 mg/L to 15 mg/L - Mercury 0.0005 mg/L to 0.1 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
6 (cont.)	Ice	- Molybdenum 0.0005 mg/L to 15 mg/L - Nickel 0.0005 mg/L to 15 mg/L - Phosphorus 0.05 mg/L to 1 000 mg/L - Potassium 0.05 mg/L to 1 000 mg/L - Selenium 0.0005 mg/L to 15 mg/L - Silver 0.0005 mg/L to 15 mg/L - Sodium 0.05 mg/L to 1 000 mg/L - Strontium 0.0005 mg/L to 15 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
6 (cont.)	Ice	- Tellurium 0.0005 mg/L to 15 mg/L - Thallium 0.0005 mg/L to 15 mg/L - Tin 0.0005 mg/L to 15 mg/L - Titanium 0.005 mg/L to 15 mg/L - Vanadium 0.0005 mg/L to 15 mg/L - Zinc 0.005 mg/L to 15 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 3125 B, 3030 F

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
6 (cont.)	Ice	- Mercury 0.0005 mg/L to 0.1 mg/L	In - house method : STM No.13-036 based on United State Environmental Protection Agency, 2007, EPA, method 7473
		- Free chlorine 0.1 mg/L to 10 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, 4500-CL (F)
		- pH 4.0 to 10.0	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 4500-H ⁺ B

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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 Changwat Songkhla 90250
 Accreditation Number : Testing - 0166
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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
6 (cont.)	Ice	- Total dissolved solids dried at 180 °C 5 mg/L to 2 000 mg/L - Total hardness (Calculated as CaCO ₃) 1 mg/L to 1 000 mg/L - Total solids dried from 103 °C to 105 °C 5 mg/L to 2 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2540 C In – house method : STM No.13-017 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2340 C Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2540 B

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
6 (cont.)	Ice	- Turbidity 0.1 NTU to 100 NTU - <i>Clostridium perfringens</i> Detected or not detected/100 mL - Coliforms CFU/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 2130 B In - house method : STM No.14-017 based on based on Standard Methods for the Examination of Water and Wastewater APHA, AWWA & WEF, 24 th ed., 2023, part 9260 A, 9274 B and FDA Bacteriological Analytical Manual online, 2001, Chapter 16 Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9222 B

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
6 (cont.)	Ice	- Coliforms MPN/100 mL Detected or not detected/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B
		- <i>Escherichia coli</i> CFU/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9222 H
		- <i>Escherichia coli</i> MPN/100 mL Detected or not detected/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B, F

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
6 (cont.)	Ice	- <i>Enterococcus</i> spp. CFU/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 9230 C
		- Fecal Coliforms MPN/100 mL Detected or not detected/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9221 B, E
		- Fecal <i>Streptococcus</i> CFU/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23 rd ed., 2017, part 9230 C

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
6 (cont.)	Ice	- <i>Salmonella</i> spp. Detected or not detected/100 mL - Standard plate count CFU/mL - <i>Staphylococcus aureus</i> CFU/100 mL Detected or not detected/100 mL	ISO 19250 : 2010 Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9215 B In - house method : STM No.14-039 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9213 B and FDA Bacteriological Analytical Manual online, 2016, Chapter 12

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
6 (cont.)	Ice	- <i>Vibrio cholerae</i> Detected or not detected/100 mL - <i>Vibrio parahaemolyticus</i> Detected or not detected/100 mL	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24 th ed., 2023, part 9278 A, B

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
7	Feeding stuffs	- Aluminium 0.10 mg/kg to 500 mg/kg - Antimony 0.01 mg/kg to 10 mg/kg - Arsenic 0.01 mg/kg to 10 mg/kg - Cadmium 0.01 mg/kg to 10 mg/kg - Calcium 20 mg/kg to 25 000 mg/kg - Chromium 0.01 mg/kg to 10 mg/kg - Copper 0.01 mg/kg to 500 mg/kg	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
7 (cont.)	Feeding stuffs	- Iron 0.10 mg/kg to 500 mg/kg - Lead 0.01 mg/kg to 10 mg/kg - Magnesium 20 mg/kg to 25 000 mg/kg - Manganese 0.01 mg/kg to 500 mg/kg - Molybdenum 0.01 mg/kg to 10 mg/kg - Phosphorus 20 mg/kg to 25 000 mg/kg - Potassium 20 mg/kg to 25 000 mg/kg - Selenium 0.01 mg/kg to 10 mg/kg	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
7 (cont.)	Feeding stuffs	- Sodium 20 mg/kg to 25 000 mg/kg - Tin 0.10 mg/kg to 500 mg/kg - Zinc 0.10 mg/kg to 500 mg/kg - Arsenic (Calculated as As ₂ O ₃) 0.02 mg/kg to 13 mg/kg - Sodium (Calculated as NaCl) 50 mg/kg to 62 000 mg/kg - Phosphorus (Calculated as P ₂ O ₅) 50 mg/kg to 57 000 mg/kg	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
7 (cont.)	Feeding stuffs	- Phosphorus (Calculated as PO_4^{3-}) 70 mg/kg to 76 000 mg/kg - Mercury 0.005 mg/kg to 5 mg/kg - Ash 0.20 g/100 g to 40.0 g/100 g - Carbohydrate (By calculation) - Total calories (By calculation)	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19 In - house method : STM No.13-012 based on U.S. Environmental Protection Agency, 2007, Method 7473 AOAC Official Methods of Analysis 22 nd ed., 2023, method 942.05 Method of analysis for Nutrition Labeling, 1993, page 106

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
7 (cont.)	Feeding stuffs	- Fat 0.30 g/100 g to 45.0 g/100 g - Fiber 0.01 g/100 g to 40.0 g/100 g - Metabolizable energy (By calculation)	In - house method : STM No.13-033 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 954.02 In - house method : STM No.13-035 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 978.10 AAFCO Association of American Feed Control Officials 2019, page 147-148

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
7 (cont.)	Feeding stuffs	- Moisture 2.00 g/100 g to 91.0 g/100 g - Total solids 9.00 g/100 g to 98.0 g/100 g - Protein 0.10 g/100 g to 60.0 g/100 g - Total nitrogen 0.01 g/100 g to 9.60 g/100 g	AOAC Official Methods of Analysis, 22 nd ed., 2023, method 930.15 In - house method : STM No.13-034 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 992.15

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
7 (cont.)	Feeding stuffs	- Salt (Calculated as NaCl) 0.12 g/100 g to 64.0 g/100 g - Salt (Calculated as Cl ⁻) 0.07 g/100 g to 38.8 g/100 g - Sodium Chloride 0.12 g/100 g to 64.0 g/100 g - Chloride 0.07 g/100 g to 38.8 g/100 g	In - house method : STM No.13-027 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 937.09

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8	Food	- Aerobic plate count CFU/g CFU/mL - <i>Bacillus cereus</i> CFU/g CFU/mL - <i>Clostridium perfringens</i> CFU/g CFU/mL Detected or not detected/ 0.001 g to 1 g, 10 g, 0.001 mL to 1 mL, 10 mL	FDA Bacteriological Analytical Manual online, 2001, Chapter 3 FDA Bacteriological Analytical Manual online, 2020, Chapter 14 FDA Bacteriological Analytical Manual online, 2001, Chapter 16

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food	- Coliforms CFU/g CFU/mL MPN/g MPN/mL Detected or not detected/ 0.001 g to 0.1 g, 0.001 mL to 0.1 mL	FDA Bacteriological Analytical Manual online, 2020, Chapter 4
		- <i>Escherichia coli</i> CFU/g CFU/mL MPN/g MPN/mL Detected or not detected/ 0.001 g to 0.1 g, 0.001 mL to 0.1 mL	FDA Bacteriological Analytical Manual online, 2020, Chapter 4

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food	- <i>Enterococcus</i> spp. CFU/g CFU/mL - Fecal Coliforms MPN/g MPN/mL Detected or not detected/ 0.001 g to 0.1 g, 0.001 mL to 0.1 mL - Fecal <i>Streptococcus</i> CFU/g CFU/mL	Compendium of Methodss for the Microbiological Examination of Foods (APHA), 5 th ed., 2015, Chapter 10 FDA Bacteriological Analytical Manual online, 2020, Chapter 4 Compendium of Methodss for the Microbiological Examination of Foods (APHA), 5 th ed., 2015, Chapter 10

Initial Issue Date 4th April 2018

Issue Number 6

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

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food	<p>- <i>Listeria monocytogens</i> Detected or not detected/ 25 g to 125 g, 25 mL to 125 mL</p> <p>- <i>Listeria</i> spp. Detected or not detected/ 25 g to 125 g, 25 mL to 125 mL</p> <p>- <i>Listeria monocytogens</i> Detected or not detected/ 25 g to 125 g, 25 mL to 125 mL</p> <p>- <i>Listeria</i> spp. Detected or not detected/ 25 g to 125 g, 25 mL to 125 mL</p>	<p>FDA Bacteriological Analytical Manual online, 2017, Chapter 10</p> <p>FDA Bacteriological Analytical Manual online, 2017, Chapter 10</p> <p>ISO 11290-1 : 2017</p>

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food	- <i>Salmonella</i> spp. Detected or not detected/ 25 g to 1 500 g, 25 mL to 1 500 mL	FDA Bacteriological Analytical Manual online, 2022, Chapter 5
		- <i>Salmonella</i> spp. Detected or not detected/ 25 g to 1 500 g, 25 mL to 1 500 mL	ISO 6579-1 : 2017 / Amd.1 : 2020
		- <i>Staphylococcus aureus</i> CFU/g CFU/mL MPN/g MPN/mL Detected or not detected/ 0.0001 g to 100 g, 0.001 mL to 100 mL	FDA Bacteriological Analytical Manual online, 2016, Chapter 12

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food	<p>- <i>Vibrio cholerae</i> Detected or not detected/ 25 g to 125 g, 25 mL to 125 mL</p> <p>- <i>Vibrio parahaemolyticus</i> MPN/g MPN/mL Detected or not detected/ 25 g to 125 g, 25 mL to 125 mL</p> <p>- Yeast and Mold CFU/g CFU/mL</p>	<p>FDA Bacteriological Analytical Manual online, 2004, Chapter 9</p> <p>FDA Bacteriological Analytical Manual online, 2001, Chapter 18</p>

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Meat and meat products - Poultry and poultry products - Fish and fish products - Vegetables, Fruits and their products - Cereal and cereal products - Snack - Tea, coffee and cocoa - Flavoring agents - Sauce - Fish sauce	- Aluminium 0.10 mg/kg to 500 mg/kg - Antimony 0.01 mg/kg to 10 mg/kg - Arsenic 0.01 mg/kg to 10 mg/kg - Cadmium 0.01 mg/kg to 10 mg/kg - Chromium 0.01 mg/kg to 10 mg/kg - Copper 0.01 mg/kg to 500 mg/kg - Iron 0.10 mg/kg to 500 mg/kg - Lead 0.01 mg/kg to 10 mg/kg - Manganese 0.01 mg/kg to 500 mg/kg	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Meat and meat products - Poultry and poultry products - Fish and fish products - Vegetables, Fruits and their products - Cereal and cereal products - Snack - Tea, coffee and cocoa - Flavoring agents - Sauce - Fish sauce	- Molybdenum 0.01 mg/kg to 10 mg/kg - Selenium 0.01 mg/kg to 10 mg/kg - Tin 0.10 mg/kg to 500 mg/kg - Zinc 0.10 mg/kg to 500 mg/kg - Arsenic (Calculated as As ₂ O ₃) 0.02 mg/kg to 13 mg/kg - Mercury 0.005 mg/kg to 5 mg/kg	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19 In - house method : STM No.13-012 based on United State Environmental Protection Agency, 2007, EPA, method 7473

Initial Issue Date 4th April 2018

Issue Number 6

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Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Meat and meat products - Poultry and poultry products - Fish and fish products	- Calcium 20 mg/kg to 25 000 mg/kg - Magnesium 20 mg/kg to 25 000 mg/kg - Phosphorus 20 mg/kg to 25 000 mg/kg - Potassium 20 mg/kg to 25 000 mg/kg - Sodium 20 mg/kg to 25 000 mg/kg - Sodium (Calculated as NaCl) 50 mg/kg to 62 000 mg/kg - Phosphorus (Calculated as P ₂ O ₅) 50 mg/kg to 57 000 mg/kg	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Meat and meat products - Poultry and poultry products - Fish and fish products	- Phosphorus (Calculated as PO_4^{3-}) 70 mg/kg to 76 000 mg/kg - Protein 0.10 g/100 g to 60.0 g/100 g - Total nitrogen 0.01 g/100 g to 9.60 g/100 g - Salt (Calculated as NaCl) 0.12 g/100 g to 64.0 g/100 g	In - house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19 In - house method : STM No.13-034 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 992.15 In - house method : STM No.13-027 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 937.09

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Meat and meat products - Poultry and poultry products - Fish and fish products	- Salt (Calculated as Cl ⁻) 0.07 g/100 g to 38.8 g/100 g - Sodium Chloride 0.12 g/100 g to 64.0 g/100 g - Chloride 0.07 g/100 g to 38.8 g/100 g - Fat 0.20 g/100 g to 45.0 g/100 g	In - house method : STM No.13-027 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 937.09 In - house method : STM No.13-032 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 922.06

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Seafood and seafood products	- Ash 0.40 g/100 g to 27.0 g/100 g - Moisture 2.10 g/100 g to 89.0 g/100 g - Total solids 11.0 g/100 g to 97.9 g/100 g - Carbohydrate (By calculation) - Total calories (By calculation)	AOAC Official Methods of Analysis, 22 nd ed., 2023, method 938.08 AOAC Official Methods of Analysis, 22 nd ed., 2023, method 952.08 Method of analysis for Nutrition Labeling, 1993, page 106

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Seafood and seafood products - Aquatic animals and products	- Sulfur dioxide 2.00 mg/kg to 240 mg/kg - Polyphosphates (Calculated as P ₂ O ₅) 0.10 g/100 g to 1.14 g/100 g - Total Phosphorus 0.05 g/100 g to 0.50 g/100 g - Arsenic 0.01 mg/kg to 10 mg/kg - Cadmium 0.01 mg/kg to 10 mg/kg - Lead 0.01 mg/kg to 10 mg/kg	In - house method : STM No.13-044 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 990.28 In - house method : STM No.13-045 based on Laboratory Manual on Analysis Methods and Procedures for Fish And Products, 2 nd ed., 1992, Marine Fisheries Research Department Center, Singapore and Pearson's Chemical Analysis of Foods, 8 th ed., 1981, page 29 – 31 In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd. (Songkhla Branch)
 Address : 114/1 Moo 8, Karnchanawanich Road, Tambon Ban Phru, Amphoe Hat Yai,
 Changwat Songkhla 90250
 Accreditation Number : Testing - 0166
 Laboratory Status : Permanent Site Temporary Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Seafood and seafood products - Aquatic animals and products	- Mercury 0.005 mg/kg to 5 mg/kg - Protein 0.10 g/100 g to 60.0 g/100 g - Total nitrogen 0.01 g/100 g to 9.60 g/100 g - Salt (Calculated as NaCl) 0.12 g/100 g to 64.0 g/100 g	In - house method : STM No.13-012 based on United State Environmental Protection Agency, 2007, EPA, method 7473 In - house method : STM No.13-034 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 992.15 In - house method : STM No.13-027 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 937.09

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Seafood and seafood products - Aquatic animals and products	- Salt (Calculated as Cl ⁻) 0.07 g/100 g to 38.8 g/100 g - Sodium Chloride 0.12 g/100 g to 64.0 g/100 g - Chloride 0.07 g/100 g to 38.8 g/100 g - Fat 0.20 g/100 g to 45.0 g/100 g	In - house method : STM No.13-027 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 937.09 In - house method : STM No.13-032 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 922.06

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Vegetables, Fruits and products - Cereal and products - Snack - Tea, coffee and cocoa - Flavoring agents - Sauce - Fish sauce	- Calcium 20 mg/kg to 25 000 mg/kg - Magnesium 20 mg/kg to 25 000 mg/kg - Phosphorus 20 mg/kg to 25 000 mg/kg - Potassium 20 mg/kg to 25 000 mg/kg - Sodium 20 mg/kg to 25 000 mg/kg - Calcium 20 mg/kg to 25 000 mg/kg - Magnesium 20 mg/kg to 25 000 mg/kg - Phosphorus 20 mg/kg to 25 000 mg/kg	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19 In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19

Initial Issue Date 4th April 2018

Issue Number 6

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Accreditation Number : Testing - 0166

Laboratory Status : Permanent Site Temporary Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food	- Potassium 20 mg/kg to 25 000 mg/kg	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19
	- Flavoring agents		
	- Sauce	- Sodium 150 mg/kg to 25 000 mg/kg	
	- Fish sauce	- Sodium (Calculated as NaCl) 400 mg/kg to 62 000 mg/kg	
	- Vegetables, Fruits and products	- Phosphorus (Calculated as P ₂ O ₅) 50 mg/kg to 57 000 mg/kg	In - house method : STM No.13-011 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 2011.19
	- Cereal and products		
	- Snack		
	- Tea, coffee and cocoa	- Phosphorus (Calculated as PO ₄ ³⁻) 70 mg/kg to 76 000 mg/kg	
	- Flavoring agents		
	- Sauce		
	- Fish sauce		
	- Milk and milk products		
	- Fat and oils		

Initial Issue Date 4th April 2018

Issue Number 6

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

Scope of Testing Laboratory Accreditation

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Accreditation Number : Testing - 0166

Laboratory Status : Permanent Site Temporary Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Vegetables, Fruits and their products - Sauce - Fish sauce	- Salt (Calculated as NaCl) 0.12 g/100 g to 64.0 g/100 g - Salt (Calculated as Cl ⁻) 0.07 g/100 g to 38.8 g/100 g - Sodium Chloride 0.12 g/100 g to 64.0 g/100 g - Chloride 0.07 g/100 g to 38.8 g/100 g	In - house method : STM No.13-027 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 937.09
	- Cereal and cereal products	- Protein 0.10 g/100 to 60.0 g/100 g - Total nitrogen 0.01 g/100 g to 9.60 g/100 g	In - house method : STM No.13-034 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 992.15

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Beverage	- Aluminium 0.10 mg/kg to 500 mg/kg - Antimony 0.01 mg/kg to 10 mg/kg - Arsenic 0.01 mg/kg to 10 mg/kg - Cadmium 0.01 mg/kg to 10 mg/kg - Calcium 3 mg/kg to 25 000 mg/kg - Chromium 0.01 mg/kg to 10 mg/kg - Copper 0.01 mg/kg to 500 mg/kg	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Beverage	- Iron 0.10 mg/kg to 500 mg/kg - Lead 0.01 mg/kg to 10 mg/kg - Magnesium 3 mg/kg to 25 000 mg/kg - Manganese 0.01 mg/kg to 500 mg/kg - Molybdenum 0.01 mg/kg to 10 mg/kg - Phosphorus 3 mg/kg to 25 000 mg/kg - Potassium 3 mg/kg to 25 000 mg/kg - Selenium 0.01 mg/kg to 10 mg/kg	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Beverage	- Sodium 3 mg/kg to 25 000 mg/kg - Tin 0.10 mg/kg to 500 mg/kg - Zinc 0.10 mg/kg to 500 mg/kg - Sodium (Calculated as NaCl) 8 mg/kg to 62 000 mg/kg - Phosphorus (Calculated as P ₂ O ₅) 7 mg/kg to 57 000 mg/kg - Phosphorus (Calculated as PO ₄ ³⁻) 10 mg/kg to 76 000 mg/kg	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Beverage	- Arsenic (Calculated as As ₂ O ₃) 0.02 mg/kg to 13.0 mg/kg - Mercury 0.005 mg/kg to 5 mg/kg	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19 In - house method : STM No.13-012 based on United State Environmental Protection Agency, 2007, EPA, method 7473

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Milk and milk products	- Aluminium 0.10 mg/kg to 500 mg/kg - Antimony 0.01 mg/kg to 10 mg/kg - Arsenic 0.01 mg/kg to 10 mg/kg - Cadmium 0.01 mg/kg to 10 mg/kg - Calcium 20 mg/kg to 25 000 mg/kg - Chromium 0.01 mg/kg to 10 mg/kg - Copper 0.01 mg/kg to 500 mg/kg - Iron 0.10 mg/kg to 500 mg/kg	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Milk and milk products	- Lead 0.01 mg/kg to 10 mg/kg - Magnesium 20 mg/kg to 25 000 mg/kg - Manganese 0.01 mg/kg to 500 mg/kg - Molybdenum 0.01 mg/kg to 10 mg/kg - Phosphorus 20 mg/kg to 25 000 mg/kg - Potassium 20 mg/kg to 25 000 mg/kg - Selenium 0.01 mg/kg to 10 mg/kg	In – house method : STM No.13-011 based on AOAC official Methods of Analysis, 22 nd ed., 2023, method 2011.19

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
8 (cont.)	Food - Milk and milk products	- Sodium 20 mg/kg to 25 000 mg/kg - Tin 0.10 mg/kg to 500 mg/kg - Zinc 0.10 mg/kg to 500 mg/kg - Sodium (Calculated as NaCl) 50 mg/kg to 62 000 mg/kg - Arsenic (Calculated as As ₂ O ₃) 0.02 mg/kg to 13.0 mg/kg - Mercury 0.005 mg/kg to 5 mg/kg	In - house method : STM No.13-011 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 2011.19 In - house method : STM No.13-012 based on United State Environmental Protection Agency, 2007, EPA, method 7473

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
9	Fat and oils	- Aluminium 0.10 mg/kg to 500 mg/kg - Antimony 0.01 mg/kg to 10 mg/kg - Arsenic 0.01 mg/kg to 10 mg/kg - Cadmium 0.01 mg/kg to 10 mg/kg - Calcium 20 mg/kg to 25 000 mg/kg - Chromium 0.01 mg/kg to 10 mg/kg - Copper 0.01 mg/kg to 500 mg/kg - Iron 0.10 mg/kg to 500 mg/kg	In - house method : STM No.13-011 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 2011.19

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
9 (cont.)	Fat and oils	- Lead 0.01 mg/kg to 10 mg/kg - Magnesium 20 mg/kg to 25 000 mg/kg - Manganese 0.01 mg/kg to 500 mg/kg - Molybdenum 0.01 mg/kg to 10 mg/kg - Phosphorus 20 mg/kg to 25 000 mg/kg - Potassium 20 mg/kg to 25 000 mg/kg - Selenium 0.01 mg/kg to 10 mg/kg - Sodium 20 mg/kg to 25 000 mg/kg	In - house method : STM No.13-011 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 2011.19

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
9 (cont.)	Fat and oils	- Tin 0.10 mg/kg to 500 mg/kg - Zinc 0.10 mg/kg to 500 mg/kg - Sodium (Calculated as NaCl) 50 mg/kg to 62 000 mg/kg - Mercury 0.005 mg/kg to 5 mg/kg	In - house method : STM No.13-011 based on AOAC Official Methods of Analysis, 22 nd ed., 2023, method 2011.19 In - house method : STM No.13-012 based on United State Environmental Protection Agency, 2007, EPA, method 7473

Initial Issue Date 4th April 2018

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
10	- Food packaging - Food contact material - Food contact surface	- Aerobic plate count CFU/50 cm ² CFU/unit - Coliforms CFU/50 cm ² CFU/unit Detected or not detected/50 cm ² Detected or not detected/unit - <i>Escherichia coli</i> CFU/50 cm ² CFU/unit Detected or not detected/50 cm ² Detected or not detected/unit	Compendium of Methods for the Microbiological Examination of Foods, 5 th ed., 2015, chapter 3 item 3.81 and chapter 8 Compendium of Methods for the Microbiological Examination of Foods, 5 th ed., 2015, chapter 3 item 3.81 and chapter 9

Initial Issue Date 4th April 2018

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
10 (cont.)	- Food packaging - Food contact material - Food contact surface	- <i>Salmonella</i> spp. Detected or not detected/50 cm ² Detected or not detected/unit - <i>Staphylococcus aureus</i> CFU/50 cm ² CFU/unit Detected or not detected/50 cm ² Detected or not detected/unit - <i>Bacillus cereus</i> CFU/50 cm ² CFU/unit Detected or not detected/50 cm ² Detected or not detected/unit	Compendium of Methods for the Microbiological Examination of Foods, 5 th ed., 2015, chapter 3 item 3.81 and chapter 36 Compendium of Methods for the Microbiological Examination of Foods, 5 th ed., 2015, chapter 3 item 3.81 and chapter 39 Compendium of Methods for the Microbiological Examination of Foods, 5 th ed., 2015, chapter 3 item 3.81 and chapter 31

Initial Issue Date 4th April 2018

Issue Number 6

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Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
10 (cont.)	- Food packaging - Food contact material - Food contact surface	- <i>Clostridium perfringens</i> CFU/50 cm ² CFU/unit Detected or not detected/50 cm ² Detected or not detected/unit - Yeast and Mold CFU/50 cm ² CFU/unit	Compendium of Methods for the Microbiological Examination of Foods, 5 th ed., 2015, chapter 3 item 3.81 and chapter 33 Compendium of Methods for the Microbiological Examination of Foods, 5 th ed., 2015, chapter 3 item 3.81 and chapter 21

Initial Issue Date 4th April 2018

Issue Number 6

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