Name of Laboratory

: ALS Laboratory Group (Thailand) Co., Ltd.

Address

: 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan Suan Luang, Bangkok 10250

Accreditation Number

: Testing - 0009

Contact Person

: Mrs. Tasanee Lakhakulporn Phone: 02-7603000

Fax: 02-7603194

E-mail::tasanee.lakhakulporn@alsglobal.com : 30th August 2006

Initial Issue Date

: 25th July 2022

Issue Date : 24th July 2026 Expired date

Standard : ISO/IEC 17025:2017

Reference No. : 0303/11109

Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Site ☐ Mobile **Laboratory Status** ☐ Temporary Item Test Material / Test Item / Test Method / Number Product Range of Testing Technique Used Food packaging and - Aerobic plate count Compendium of Methods for the cfu/50 cm² food contact material Microbiological Examination of Foods, 5th ed., 2015, chapter 3 cfu/unit item 3.81 and chapter 8 - Coliforms Compendium of Methods for the cfu/50 cm² Microbiological Examination of Foods, 5th ed., 2015, chapter 3 cfu/unit Detected or not detected/50 cm² item 3.81 and chapter 9 Detected or not detected/unit - E. coli Compendium of Methods for the cfu/50 cm² Microbiological Examination of Foods, 5th ed., 2015, chapter 3 cfu/unit Detected or not detected/50 cm² item 3.81 and chapter 9 Detected or not detected/unit

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
1	Food packaging and	- Fecal coliform	Compendium of Methods for the
(cont.)	food contact material	Detected or not detected/50 cm ²	Microbiological Examination of
		Detected or not detected/unit	Foods, 5 th ed., 2015, chapter 3
			item 3.81 and chapter 9
		- Salmonella spp.	Compendium of Methods for the
		Detected or not detected/50 cm ²	Microbiological Examination of
		Detected or not detected/unit	Foods, 5 th ed., 2015, chapter 3
			item 3.81 and chapter 36
		- Staphylococcus aureus	Compendium of Methods for the
		cfu/50 cm ²	Microbiological Examination of
		cfu/unit	Foods, 5 th ed., 2015, chapter 3
		Detected or not detected/50 cm ²	item 3.81 and chapter 39
		Detected or not detected/unit	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
1	Food packaging and	- Bacillus cereus	Compendium of Methods for the
(cont.)	food contact material	cfu/50 cm ²	Microbiological Examination of
		cfu/unit	Foods, 5 th ed., 2015, chapter 3
		Detected or not detected/50 cm ²	item 3.81 and chapter 31
		Detected or not detected/unit	
		- Clostridium perfringens	Compendium of Methods for the
		cfu/50 cm ²	Microbiological Examination of
		cfu/unit	Foods, 5 th ed., 2015, chapter 3
		Detected or not detected/50 cm ²	item 3.81 and chapter 33
		Detected or not detected/unit	
		- Listeria monocytogenes	Compendium of Methods for the
		Detected or not detected/50 cm ²	Microbiological Examination of
		Detected or not detected/unit	Foods, 5 th ed., 2015, chapter 3
			item 3.81 and chapter 35

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent **Laboratory Status** ☐ Site ☐ Temporary ☐ Mobile Test Material / Test Item / Test Method / Item Number Product Range of Testing Technique Used Food packaging and 1 - Listeria spp. Compendium of Methods for the food contact material Detected or not detected/50 cm² Microbiological Examination of (cont.) Foods, 5th ed., 2015, chapter 3 Detected or not detected/unit item 3.81 and chapter 35 - Yeast and Mold count Compendium of Methods for the cfu/50 cm² Microbiological Examination of Foods, 5th ed., 2015, chapter 3 cfu/unit item 3.81 and chapter 21 2 Plastics food - Overall migration (10% ethanol) The European Standard BS EN 3 mg/dm² to 100 mg/dm² packaging 1186-3,5 : 2002 and Commission - Overall migration (20% ethanol) Regulations (EU) No.10/2011 3 mg/dm² to 100 mg/dm² - Overall migration (50% ethanol) 3 mg/dm² to 100 mg/dm² - Overall migration (3% acetic acid) 3 mg/dm² to 100 mg/dm²

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Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Method /
nique Used
: STM 04-056
ppean Standard
002 and
ations (EU)
I : STM 05-054
sion Regulations (EU)
e European Standard
004, and Standard
xamination of Water
PHA, AWWA & WEF,
t 3125 B

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
2	Plastics food	Specific migration :	In - house method : STM 05-054
(cont.)	packaging	- Antimony	based on Commission Regulations (EU)
		- Cobalt	No. 2020/1245, The European Standard
		- Europium	BS EN 13130-1 : 2004, and Standard
		- Gadolinium	Methods for the Examination of Water
		- Lanthanum	and Wastewater, APHA, AWWA & WEF,
		- Terbium	23 rd ed., 2017, part 3125 B
		0.02 mg/kg to 0.40 mg/kg	
		- Iron	
		3.00 mg/kg to 81 mg/kg	
		- Nickel	
		0.005 mg/kg to 0.048 mg/kg	
		- Cadmium	
		0.002 mg/kg to 0.048 mg/kg	
		- Arsenic	
		- Chromium	
		- Lead	
		0.01 mg/kg to 0.048 mg/kg	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Mobile ☐ Site ☐ Temporary **Laboratory Status** Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used 2 Plastics food - Mercury In - house method: STM 05-052 0.01 mg/kg to 0.075 mg/kg (cont.) packaging based on Commission Regulations (EU) No. 2020/1245, The European Standard BS EN 13130-1 : 2004, and United States Environmental Protection Agency, 2002, EPA Method 1631, Revision E - Calcium In - house method: STM 05-053 based on Commission Regulations (EU) - Magnesium - Potassium No. 2020/1245, The European Standard - Sodium BS EN 13130-1 : 2004 and United States 3.00 mg/kg to 16.2 mg/kg Environmental Protection Agency, 1994, EPA Method 200.7, Revision 4.4

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: \square Permanent \square Site \square	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
2	- Polyethylene	- Residue after evaporation in	Specifications, Standards and
(cont.)	- Polypropylene	20% ethanol simulant	Testing Methods for Foodstuffs,
	- Polystyrene	5 mg/dm³ to 100 mg/dm³	Implements, Containers and
	- Polyvinyl chloride		Packaging, Toys, Detergents 2008,
	- Polyethylene	- Residue after evaporation in	Japan External Trade Organization,
	terephthalate	4% acetic acid simulant	JETRO, section II, B-5
		5 mg/dm³ to 100 mg/dm³	
		- Residue after evaporation in	
		n- heptane	
		5 mg/dm³ to 500 mg/dm³	
		- Residue after evaporation in	
		water	
		5 mg/dm³ to 100 mg/dm³	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd. Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan, Suan Luang, Bangkok 10250 Accreditation Number : Testing - 0009 : **P**ermanent ☐ Mobile Laboratory Status ☐ Site ☐ Temporary Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used 2 Plastics food - Potassium permanganate Specifications, Standards and consumption Testing Methods for Foodstuffs, (cont.) packaging 0.5 mg/dm³ to 15.0 mg/dm³ - Polyethylene Implements, Containers and - Polypropylene Packaging, Toys, Detergents 2008, - Polystyrene Japan External Trade Organization, - Polyvinyl chloride JETRO, section II, B-1 and C-3 - Polyethylene terephthalate

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: \square Permanent \square Site \square	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
2	Plastics food	- Material test	In - house method : STM 05-019
(cont.)	packaging	- Arsenic	based on Specifications, Standards
	- Polyethylene	- Cadmium	and Testing Methods for Foodstuffs,
	- Polypropylene	0.50 mg/kg to 90 mg/kg	Implements, Containers and
	- Polystyrene	- Lead	Packaging, Toys, Detergents 2008,
	- Polyvinyl chloride	3.0 mg/kg to 90 mg/kg	Japan External Trade Organization,
	- Polycarbonate		JETRO, section II, B-9
	- Polyethylene		
	terephthalate	- Total heavy metal (as Pb)	In - house method : STM 05-016
	- Nylon	Less than 10 mg/kg	based on Compendium of Methods
			for Food Analysis, DMSc & ACFS,
			1 st ed., 2003

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
2	Plastics food	- Migration test	In - house method : STM 05-021
(cont.)	packaging	- Antimony	based on Specifications, Standards
	- Polyethylene	- Germanium	and Testing Methods for Foodstuffs,
	- Polypropylene	0.01 mg/dm ³ to 4.0 mg/dm ³	Implements, Containers and
	- Polystyrene		Packaging, Toys, Detergents 2008,
	- Polyvinyl chloride		Japan External Trade Organization,
	- Polycarbonate		JETRO, section II, B-9
	- Polyethylene		
	terephthalate	- Total heavy metal (as Pb)	In - house method : STM 05-018
	- Nylon	Less than 0.5 mg/dm ³	based on Specifications, Standards
			and Testing Methods for Foodstuffs,
			Implements, Containers and
			Packaging, Toys, Detergents 2008,
			Japan External Trade Organization,
			JETRO, section II, B-4

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
2	Plastics food	- Volatile substance	In - house method : STM 04-058
(cont.)	packaging	500 mg/kg to 25 000 mg/kg	based on Specifications, Standards
	- Polystyrene	- Toluene	and Testing Methods for Foodstuffs,
		- Ethylbenzene	Implements, Containers and
		- Isopropyl benzene	Packaging, Toys, Detergents 2008,
		- Styrene	Japan External Trade Organization,
		- n-Propyl benzene	JETRO, section II, D-2
		100 mg/kg to 5 000 mg/kg	
	- Polyethylene	- Substance soluble in n-Hexane	TIS 656 : 2013
	- Polypropylene	500 mg/kg to 50 000 mg/kg	
		- Substances soluble in xylene	
		at 25 ℃	
		800 mg/kg to 100 000 mg/kg	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Temporary ☐ Site ☐ Mobile **Laboratory Status** Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used In - house method: STM 04-003 3 Water - pH 6.0 to 10.0 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H⁺ B - BOD Standard Methods for the Examination 2 mg/L to 500 mg/L of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - O G - Cyanide In - house method: STM 04-007 0.005 mg/L to 5 mg/L based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - CN C, E

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
3	Water	- Nitrate as Nitrogen	In - house method : STM 04-004
(cont.)		0.2 mg/L to 50 mg/L	based on Standard Methods for the
			Examination of Water and Wastewater,
		- Nitrate	APHA, AWWA & WEF, 23 rd ed., 2017,
		1.0 mg/L to 250 mg/L	part 4110 B
		- Total kjeldahl nitrogen	In - house method : STM 04-100
		1 mg/L to 500 mg/L	based on Standard Methods for the
			Examination of Water and Wastewater,
			APHA, AWWA & WEF, 23 rd ed., 2017,
			part 4500 – N _{org} D

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Site ☐ Temporary ☐ Mobile **Laboratory Status** Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used - Oil & Grease 3 Water In - house method: STM 04-014 (cont.) 3 mg/L to 200 mg/L based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 5520 B - Standard plate count Standard Methods for the Examination cfu/mL of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B - Total coliform Standard Methods for the Examination MPN/100 mL of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017. part 9221 B

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Mobile ☐ Site ☐ Temporary **Laboratory Status** Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used 3 Water - Total coliform Standard Methods for the Examination (cont.) cfu/100 mL of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9222 B - E. coli Standard Methods for the Examination MPN/100 mL of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017. part 9221 B, F - E. coli Standard Methods for the Examination of Water and Wastewater, APHA, cfu/100 mL AWWA & WEF, 23rd ed., 2017, part 9222 H

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Site ☐ Temporary ☐ Mobile **Laboratory Status** Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used - Fecal coliform 3 Water Standard Methods for the Examination MPN/100 mL of Water and Wastewater, APHA, (cont.) AWWA & WEF, 23rd ed., 2017, part 9221 B, E - Fecal coliform Standard Methods for the Examination cfu/100 mL of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9222 D - Salmonella spp. Standard Methods for the Examination Detected or not detected of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9260 B ISO 19250: 2010 - Salmonella spp. Detected or not detected

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Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Mobile ☐ Site ☐ Temporary **Laboratory Status** Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used 3 Water - Legionella spp. ISO 11731: 2017 cfu/L (cont.) - Staphylococcus aureus In - house method: STM 01-054 Detected or not detected based on Standard Methods for the Examination of Water and Wastewater. APHA, AWWA & WEF, 23rd ed., 2017, part 9213 B and FDA Bacteriological Analytical Manual online, Chapter 12, 2016 - Clostridium perfringens ISO 14189: 2013 cfu/100 mL In - house method : STM 05-007 - Mercury $0.5 \mu g/L$ to $5.0 \mu g/L$ based on United States Environmental Protection Agency, 2002, EPA Method 1631, Revision E

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Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
3	Water	- Hexavalent chromium	Standard Methods for the Examination
(cont.)		0.01 mg/L to 8 mg/L	of Water and Wastewater, APHA,
			AWWA & WEF, 23 rd ed., 2017,
			part 3500-Cr B
		- Calcium	In - house method : STM 05-014
		- Magnesium	based on United State
		- Phosphorus	Environmental Protection Agency,
		- Potassium	1994, EPA Method 200.7
		- Sodium	
		- Sulfur	
		0.05 mg/L to 1 000 mg/L	

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Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **P**ermanent ☐ Mobile **Laboratory Status** ☐ Site ☐ Temporary Test Material / Test Item / Test Method / Item Product Range of Testing Number Technique Used - Aluminium Standard Methods for the Examination 3 Water (cont.) of Water and Wastewater, APHA, - Iron AWWA & WEF, 23rd ed., 2017, - Zinc part 3125 B, 3030 F 0.005 mg/L to 100 mg/L - Antimony - Arsenic - Beryllium - Cadmium - Molybdenum - Selenium - Silver - Strontium - Tellurium - Thallium 0.0005 mg/L to 3 mg/L

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

y Status	: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Test Material /	Test Item /	Test Method /
Product	Range of Testing	Technique Used
Water	- Tin	Standard Methods for the Examination
	- Uranium	of Water and Wastewater, APHA,
	- Vanadium	AWWA & WEF, 23 rd ed., 2017,
	0.0005 mg/L to 3 mg/L	part 3125 B, 3030 F
	- Barium	
	- Chromium	
	- Cobalt	
	- Copper	
	- Lead	
	- Manganese	
	- Nickel	
	0.0005 mg/L to 100 mg/L	
	Test Material / Product	Test Material / Range of Testing Water - Tin - Uranium - Vanadium 0.0005 mg/L to 3 mg/L - Barium - Chromium - Cobalt - Copper - Lead - Manganese - Nickel

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Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
3	Water	- Bismuth	Standard Methods for the Examination
(cont.)		- Boron	of Water and Wastewater, APHA,
		- Lithium	AWWA & WEF, 23 rd ed., 2017,
		- Titanium	part 3125 B, 3030 F
		0.005 mg/L to 3 mg/L	
		- Cerium	
		- Cesium	
		- Dysprosium	
		- Erbium	
		- Europium	
		- Gadolinium	
		- Gallium	
		- Gold	
		- Hafnium	
		- Holmium	
		- Iridium	
		0.0005 mg/L to 0.4 mg/L	

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Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **P**ermanent ☐ Mobile **Laboratory Status** ☐ Site ☐ Temporary Test Material / Test Item / Test Method / Item Product Range of Testing Number Technique Used 3 Water - Lanthanum Standard Methods for the Examination (cont.) of Water and Wastewater, APHA, - Neodymium AWWA & WEF, 23rd ed., 2017, - Niobium part 3125 B, 3030 F - Palladium - Platinum - Praseodymium - Rhenium - Rubidium - Ruthenium - Samarium - Tantalum - Thorium - Thulium - Tungsten - Ytterbium - Yttrium - Zirconium 0.0005 mg/L to 0.4 mg/L

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

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

y Status	: \square Permanent \square Site \square	Temporary \square Mobile
Test Material /	Test Item /	Test Method /
Product	Range of Testing	Technique Used
Water	- Rhodium	Standard Methods for the Examination
	- Terbium	of Water and Wastewater, APHA,
	0.005 mg/L to 0.4 mg/L	AWWA & WEF, 23 rd ed., 2017,
		part 3125 B, 3030 F
	Volatile Organic Compounds	Standard Methods for the Examination
	- 1,1,1-Trichloroethane	of Water and Wastewater, APHA,
	- 1,1,2-Trichloroethane	AWWA & WEF, 23 rd ed., 2017,
	- 1,1-Dichloroethylene	part 6200 B
	- 1,2-Dichloroethane	
	- Benzene	
	- Carbon tetrachloride	
	- cis- 1,2-Dichloroethane	
	- Dichloromethane	
	- Ethylbenzene	
	- Styrene	
	- Tetrachloroethylene	
	0.5 μg/L to 1 000 μg/L	
	Product	Test Material / Range of Testing Water - Rhodium - Terbium 0.005 mg/L to 0.4 mg/L Volatile Organic Compounds - 1,1,1-Trichloroethane - 1,1,2-Trichloroethane - 1,1-Dichloroethylene - 1,2-Dichloroethane - Benzene - Carbon tetrachloride - cis- 1,2-Dichloroethane - Dichloromethane - Dichloromethane - Ethylbenzene - Styrene - Tetrachloroethylene

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

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laborato	ry Status	: \square Permanent \square Site \square	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
3	Water	Volatile Organic Compounds	Standard Methods for the Examination
(cont.)		- Toluene	of Water and Wastewater, APHA,
		- o -Xylene	AWWA & WEF, 23 rd ed., 2017,
		- trans-1,2-Dichloroethene	part 6200 B
		- Trichloroethylene	
		- Vinyl chloride	
		- 2-Butanone	
		0.5 μg/L to 1 000 μg/L	
		- m,p -Xylene	
		1.0 μg/L to 2 000 μg/L	
		- Total xylene	
		1.5 μg/L to 3 000 μg/L	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laborato	y Status	: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
3	Water	Pesticide residues	In - house method : STM 04-036
(cont.)		Organochlorine group :	based on Standard Methods for the
		- 2,4-DDD	Examination of Water and Wastewater,
		- 2,4-DDE	APHA, AWWA & WEF, 23 rd ed., 2017,
		- 2,4-DDT	part 6630 C
		- 4,4-DDD	
		- 4,4-DDE	
		- 4,4-DDT	
		- Aldrin	
		- α-BHC	
		- β–ВНС	
		- δ–BHC	
		- trans -Chlordane	
		- Dieldrin	
		- Endosulfan I	
		- Endosulfan II	
		0.02 µg/L to 200 µg/L	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laborato	ry Status	: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
3	Water	Pesticide residues	In - house method : STM 04-036
(cont.)		Organochlorine group :	based on Standard Methods for the
		- Endosulfan-sulfate	Examination of Water and Wastewater,
		- Endrin	APHA, AWWA & WEF, 23 rd ed., 2017,
		- Heptachlor	part 6630 C
		- Heptachlor – epoxide	
		- Hexachlorobenzene	
		- ү-ВНС	
		- Methoxychlor	
		0.02 µg/L to 200 µg/L	
		Pesticide residues	In - house method : STM 04-101
		Organochlorine group :	based on Standard Methods for the
		- 2,4-DDD	Examination of Water and Wastewater,
		- 2,4-DDE	APHA, AWWA & WEF, 23 rd ed., 2017,
		- 2,4-DDT	part 6630 D, part 6410 B
		0.02 µg/L to 5 µg/L	

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

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent Laboratory Status ☐ Site ☐ Temporary ☐ Mobile Test Material / Test Item / Test Method / Item Product Range of Testing Number Technique Used 3 Water Pesticide residues In - house method: STM 04-101 (cont.) Organochlorine group: based on Standard Methods for the - 4,4-DDD Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, - 4,4-DDE part 6630 D, part 6410 B - 4,4-DDT - Aldrin - α-BHC - β-BHC - δ -BHC - cis -Chlordane - Dieldrin - Endosulfan I - Endosulfan II - Endosulfan-sulfate - Endrin - Heptachlor - Heptachlor – epoxide $0.02 \mu g/L$ to $5 \mu g/L$

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

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Mobile Laboratory Status ☐ Site ☐ Temporary Test Material / Test Item / Test Method / Item Product Range of Testing Number Technique Used 3 Water Pesticide residues In - house method: STM 04-101 (cont.) Organochlorine group: based on Standard Methods for the - Hexachlorobenzene Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, - γ-BHC - Methoxychlor part 6630 D, part 6410 B - trans -Chlordane - Mirex - Endrin aldehyde - Endrin Ketone $0.02 \mu g/L$ to $5 \mu g/L$ - Chlordane $0.04 \mu g/L$ to $10 \mu g/L$

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Temporary ☐ Mobile ☐ Site **Laboratory Status** Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used Pesticide residues 3 Water In - house method: STM 04-101 (cont.) Organochlorine group: based on Standard Methods for the - Atrazine Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017. 0.5 µg/L to 25 µg/L - Total DDT part 6630 D, part 6410 B $0.12 \mu g/L$ to $30 \mu g/L$ Pesticide residues In - house method: STM 04-101 Pyrethroid group: based on Standard Methods for the - Bifenthrin Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, - Cyfluthrin - Cypermethrin part 6630 D, part 6410 B - Deltamethrin - Fenvalerate - lambda-Cyhalothrin - Permethrin $0.1 \,\mu g/L$ to $5 \,\mu g/L$

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent **Laboratory Status** ☐ Site ☐ Temporary ☐ Mobile Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used In - house method: STM 04-067 3 Water Pesticide residues Organophosphate group: based on United States Environmental (cont.) - Azinphos-ethyl Protection Agency, 1996, - Chlorpyrifos EPA Method 3510 C and United States - Chlorpyrifos-methyl Environmental Protection Agency, 1994, - DDVP EPA, Method 8141 A - Demeton-S-methyl - Diazinon - Dicrotophos - Dimethoate - EPN - Ethion - Fenitrothion - Malathion - Methidathion - Mevinphos $0.1 \,\mu g/L$ to $5 \,\mu g/L$

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

LA-F-31-9/11-19 page 31/79

Scope of Testing Laboratory Accreditation

: ALS Laboratory Group (Thailand) Co., Ltd. Laboratory Name Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan, Suan Luang, Bangkok 10250 Accreditation Number : Testing - 0009 : **☑** Permanent ☐ Temporary **Laboratory Status** ☐ Site ☐ Mobile Test Material / Test Item / Test Method / Item Product Range of Testing Number Technique Used Pesticide residues 3 Water In - house method : STM 04-067 (cont.) Organophosphate group: based on United States Environmental - Parathion-ethyl Protection Agency, 1996, - Parathion-methyl EPA Method 3510 C and United States - Phorate Environmental Protection Agency, 1994, - Phosalone EPA, Method 8141 A - Pirimiphos-ethyl - Pirimiphos-methyl - Profenofos

- Prothiophos

- Triazophos

 $0.1 \,\mu g/L$ to $5 \,\mu g/L$

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laborato	y Status	: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
3	Water	Polycyclic Aromatic Hydrocarbons	In-house method : STM 04-102
(cont.)		- 1-Methylnaphthalene	based on Standard Methods for the
		- 2-Methylnaphthalene	Examination of Water and Wastewater,
		- Acenaphthene	APHA, AWWA & WEF, 23 rd ed., 2017,
		- Acenaphthylene	part 6440 C, part 6410 B
		- Anthracene	
		- Benzo(a)anthracene	
		- Benzo(a)pyrene	
		- Benzo(b)fluoranthene	
		- Benzo(ghi)perylene	
		- Benzo(k)fluoranthene	
		- Chrysene	
		- Dibenzo(a,h)anthracene	
		- Fluoranthene	
		- Fluorene	
		- Indeno (1,2,3-cd) pyrene	
		- Naphthalene	
		0.01 µg/L to 10 µg/L	
1			

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Scope of Testing Laboratory Accreditation

☐ Site

☐ Temporary

☐ Mobile

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

: 🗹 Permanent

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status

Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
3	Water	Polycyclic Aromatic Hydrocarbons	In-house method : STM 04-102
(cont.)		- Phenanthrene	based on Standard Methods for the
		- Pyrene	Examination of Water and Wastewater,
		0.01 μg/L to 10 μg/L	APHA, AWWA & WEF, 23 rd ed., 2017,
		- Benzo (bk) fluoranthene	part 6440 C, part 6410 B
		0.02 μg/L to 20 μg/L	
		Total Petroleum Hydrocarbons	In - house method : STM 04-071
		- TPH (C _{>8} - C ₁₆)	based on United States Environmental
		- TPH (C _{>16} - C ₃₅)	Protection Agency, 1996,
		- TPH (C ₁₀ - C ₁₄)	EPA Method 3510 C and United States
		- TPH (C ₁₅ - C ₂₈)	Environmental Protection Agency, 2007,
		- TPH (C ₂₉ - C ₃₆)	EPA Method 8015 C
		10 μg/L to 5 000 μg/L	

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Scope of Testing Laboratory Accreditation

☐ Site

☐ Temporary

☐ Mobile

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

: **☑** Permanent

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status

Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used Wastewater 4 - pH In - house method : STM 04-003 4.0 to 10.0 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - H⁺ B - Total Kjeldahl Nitrogen In - house method : STM 04-100 1 mg/L to 500 mg/L based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 4500 - N_{org} D - Oil & Grease In - house method: STM 04-014 3 mg/L to 2 000 mg/L based on Standard Methods for the

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Examination of Water and Wastewater,

APHA, AWWA & WEF, 23rd ed., 2017,

part 5520 B

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: $\ \ \square$ Permanent $\ \ \square$ Site $\ \ \square$	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
4	Wastewater	- BOD	Standard Methods for the Examination
(cont.)		2 mg/L to 10 000 mg/L	of Water and Wastewater, APHA,
			AWWA & WEF, 23 rd ed., 2017,
			part 5210 B and part 4500 – O G
		- COD	Standard Methods for the Examination
		5 mg/L to 20 000 mg/L	of Water and Wastewater, APHA,
			AWWA & WEF, 23 rd ed., 2017,
			part 5220 D
		- Cyanide	In - house method : STM 04-007
		0.005 mg/L to 5 mg/L	based on Standard Methods for the
			Examination of Water and Wastewater,
			APHA, AWWA & WEF, 23 rd ed., 2017,
			part 4500 - CN C, E

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
4	Wastewater	- Total dissolved solids	In - house method : STM 04-010
(cont.)		at 103 °C to 105 °C	based on Standard Methods for the
		100 mg/L to 20 000 mg/L	Examination of Water and Wastewater,
			APHA, AWWA & WEF, 23 rd ed., 2017,
			part 2540 C
		- Total dissolved solids	Standard Methods for the Examination
		at 180 °C	of Water and Wastewater, APHA,
		100 mg/L to 20 000 mg/L	AWWA & WEF, 23 rd ed., 2017,
			part 2540 C
		- Total suspended solids	Standard Methods for the Examination
		at 103 °C to 105 °C	of Water and Wastewater, APHA,
		5 mg/L to 5 000 mg/L	AWWA & WEF, 23 rd ed., 2017,
			part 2540 D

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
4	Wastewater	- Standard plate count	Standard Methods for the Examination
(cont.)		cfu/mL	of Water and Wastewater, APHA,
			AWWA & WEF, 23 rd ed., 2017,
			part 9215 B
		- Total coliform	Standard Methods for the Examination
		MPN/100 mL	of Water and Wastewater, APHA,
			AWWA & WEF, 23 rd ed., 2017,
			part 9221 B
		- Total coliform	Standard Methods for the Examination
		cfu/100 mL	of Water and Wastewater, APHA,
			AWWA & WEF, 23 rd ed., 2017,
			part 9222 B

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

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: $\ \ \square$ Permanent $\ \ \square$ Site $\ \ \square$	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
4	Wastewater	- E. coli	Standard Methods for the Examination
(cont.)		MPN/100 mL	of Water and Wastewater, APHA,
			AWWA & WEF, 23 rd ed., 2017,
			part 9221 B, F
		- E. coli	Standard Methods for the Examination
		cfu/100 mL	of Water and Wastewater, APHA,
			AWWA & WEF, 23 rd ed., 2017,
			part 9222 H
		- Fecal coliform	Standard Methods for the Examination
		MPN/100 mL	of Water and Wastewater, APHA,
			AWWA & WEF, 23 rd ed., 2017,
			part 9221 B, E

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
4	Wastewater	- Fecal coliform	Standard Methods for the Examination
(cont.)		cfu/100 mL	of Water and Wastewater, APHA,
			AWWA & WEF, 23 rd ed., 2017,
			part 9222 D
		- Salmonella spp.	Standard Methods for the Examination
		Detected or not detected	of Water and Wastewater, APHA,
			AWWA & WEF, 23 rd ed., 2017,
			part 9260 B
		- Salmonella spp.	ISO 19250 : 2010
		Detected or not detected	
		- Legionella spp.	ISO 11731 : 2017
		cfu/L	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
4	Wastewater	- Staphylococcus aureus	In - house method : STM 01-054
(cont.)		Detected or not detected	based on Standard Methods for the
			Examination of Water and Wastewater,
			APHA, AWWA & WEF, 23 rd ed., 2017,
			part 9213 B and FDA Bacteriological
			Analytical Manual online, Chapter 12,
			2016
		- Mercury	In - house method : STM 05-007
		0.5 μg/L to 20 μg/L	based on United States
			Environmental Protection Agency,
			2002, EPA Method 1631, Revision E

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Site ☐ Temporary ☐ Mobile **Laboratory Status** Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used Standard Methods for the Examination 4 Wastewater - Hexavalent chromium 0.01 mg/L ถึง 200 mg/L of Water and Wastewater, APHA, (cont.) AWWA & WEF, 23rd ed., 2017, part 3500-Cr B - Calcium In - house method: STM 05-014 - Magnesium based on United State - Phosphorus Environmental Protection Agency, - Potassium 1994, EPA Method 200.7 - Sodium - Sulfur 0.05 mg/L to 1 000 mg/L - Aluminium Standard Methods for the Examination - Iron of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, - Zinc 0.005 mg/L to 1 000 mg/L part 3125 B, 3030 F

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☐ Mobile

☐ Temporary

Scope of Testing Laboratory Accreditation

☐ Site

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

: **P**ermanent

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status

Test Material / Test Item / Test Method / Item Product Range of Testing Number Technique Used 4 Wastewater - Antimony Standard Methods for the Examination (cont.) of Water and Wastewater, APHA, - Arsenic AWWA & WEF, 23rd ed., 2017, - Beryllium part 3125 B, 3030 F - Cadmium - Molybdenum - Selenium - Silver - Strontium - Tellurium - Thallium - Tin - Uranium - Vanadium 0.0005 mg/L to 15 mg/L

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **P**ermanent ☐ Mobile Laboratory Status ☐ Site ☐ Temporary Test Material / Test Item / Test Method / Item Product Range of Testing Number Technique Used 4 Wastewater - Barium Standard Methods for the Examination - Chromium of Water and Wastewater, APHA, (cont.) AWWA & WEF, 23rd ed., 2017, - Cobalt part 3125 B, 3030 F - Copper - Lead - Manganese - Nickel 0.0005 mg/L to 1 000 mg/L - Bismuth - Boron - Lithium - Titanium 0.005 mg/L to 15 mg/L

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Scope of Testing Laboratory Accreditation

☐ Site

Test Item /

☐ Temporary

☐ Mobile

Test Method /

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

: **P**ermanent

- Niobium

- Palladium

- Platinum

- Praseodymium

0.0005 mg/L to 0.4 mg/L

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Test Material /

Laboratory Status

Item

Product Range of Testing Number Technique Used Standard Methods for the Examination 4 Wastewater - Cerium of Water and Wastewater, APHA, (cont.) - Cesium AWWA & WEF, 23rd ed., 2017, - Dysprosium part 3125 B, 3030 F - Erbium - Europium - Gadolinium - Gallium - Gold - Hafnium - Holmium - Iridium - Lanthanum - Neodymium

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Scope of Testing Laboratory Accreditation

☐ Site

☐ Temporary

☐ Mobile

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

: **P**ermanent

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status

Test Material / Test Item / Test Method / Item Product Range of Testing Number Technique Used 4 Wastewater - Rhenium Standard Methods for the Examination of Water and Wastewater, APHA, (cont.) - Rubidium AWWA & WEF, 23rd ed., 2017, - Ruthenium part 3125 B, 3030 F - Samarium - Tantalum - Thorium - Thulium - Tungsten - Ytterbium - Yttrium - Zirconium 0.0005 mg/L to 0.4 mg/L - Rhodium

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- Terbium

0.005 mg/L to 0.4 mg/L

Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
4	Wastewater	Volatile Organic Compounds	Standard Methods for the Examination
(cont.)		- 1,1,1-Trichloroethane	of Water and Wastewater, APHA,
		- 1,1,2-Trichloroethane	AWWA & WEF, 23 rd ed., 2017,
		- 1,1-Dichloroethylene	part 6200 B
		- 1,2-Dichloroethane	
		- Benzene	
		- Carbon tetrachloride	
		- cis -1,2-Dichloroethene	
		- trans -1,2-Dichloroethene	
		- Dichloromethane	
		- Ethylbenzene	
		- Styrene	
		0.5 µg/L to 1 000 µg/L	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ✓ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
4	Wastewater	Volatile Organic Compounds	Standard Methods for the Examination
(cont.)		- Tetrachloroethylene	of Water and Wastewater, APHA,
		- Toluene	AWWA & WEF, 23 rd ed., 2017,
		- o-Xylene	part 6200 B
		- Trichloroethylene	
		- Vinyl chloride	
		- 2-Butanone	
		0.5 µg/L to 1 000 µg/L	
		- m,p–Xylene	
		1.0 μg/L to 2 000 μg/L	
		- Total xylene	
		1.5 μg/L to 3 000 μg/L	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
4	Wastewater	Pesticide residues	In - house method : STM 04-036
(cont.)		Organochlorine group :	based on Standard Methods for the
		- 2,4-DDD	Examination of Water and Wastewater,
		- 2,4-DDE	APHA, AWWA & WEF, 23 rd ed., 2017,
		- 2,4-DDT	part 6630 C
		- 4,4-DDD	
		- 4,4-DDE	
		- 4,4-DDT	
		- Aldrin	
		- α-BHC	
		- β–BHC	
		- δ–BHC	
		- Chlordane	
		- Dieldrin	
		- Endosulfan I	
		- Endosulfan II	
		0.02 µg/L to 200 µg/L	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Site ☐ Temporary ☐ Mobile **Laboratory Status** Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used In - house method: STM 04-036 4 Wastewater Pesticide residues (cont.) Organochlorine group: based on Standard Methods for the - Endosulfan-sulfate Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, - Endrin - Heptachlor part 6630 - Heptachlor – epoxide - Hexachlorobenzene - γ-BHC - Methoxychlor $0.02 \mu g/L$ to $200 \mu g/L$ Pesticide residues In - house method: STM 04-101 Organochlorine group: based on Standard Methods for the - 2,4-DDD Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, - 2,4-DDE - 2,4-DDT part 6630 D, part 6410 B - 4,4-DDD $0.02 \mu g/L$ to $5 \mu g/L$

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd. Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan, Suan Luang, Bangkok 10250 Accreditation Number : Testing - 0009 : **☑** Permanent ☐ Mobile Laboratory Status ☐ Site ☐ Temporary Test Material / Test Item / Test Method / Item Product Range of Testing Number Technique Used Pesticide residues 4 Wastewater In - house method: STM 04-101 (cont.) Organochlorine group: based on Standard Methods for the - 4,4-DDE Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, - 4,4-DDT part 6630 D, part 6410 B - Aldrin - α-BHC - β-BHC - δ -BHC - cis -Chlordane - Dieldrin - Endosulfan I - Endosulfan II - Endosulfan-sulfate - Endrin

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0.02 µg/L to 5 µg/L

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
4	Wastewater	Pesticide residues	In - house method : STM 04-101
(cont.)		Organochlorine group :	based on Standard Methods for the
		- Heptachlor	Examination of Water and Wastewater,
		- Heptachlor – epoxide	APHA, AWWA & WEF, 23 rd ed., 2017,
		- Hexachlorobenzene	part 6630 D, part 6410 B
		- γ-BHC	
		- Methoxychlor	
		- trans -Chlordane	
		- Mirex	
		- Endrin aldehyde	
		- Endrin Ketone	
		0.02 μg/L to 5 μg/L	
		- Chlordane	
		0.04 μg/L to 10 μg/L	
		- Atrazine	
		0.5 μg/L to 25 μg/L	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laborato	ry Status	: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
4	Wastewater	Pesticide residues	In - house method : STM 04-101
(cont.)		Pyrethroid group :	based on Standard Methods for the
		- Bifenthrin	Examination of Water and Wastewater,
		- Cyfluthrin	APHA, AWWA & WEF, 23 rd ed., 2017,
		- Cypermethrin	part 6630 D, part 6410 B
		- Deltamethrin	
		- Fenvalerate	
		- lambda-Cyhalothrin	
		- Permethrin	
		0.1 µg/L to 5 µg/L	
		Pesticide residues	In - house method : STM 04-067
		Organophosphate group :	based on United States Environmental
		- Azinphos-ethyl	Protection Agency, 1996,
		- Chlorpyrifos	EPA Method 3510 C and United States
		- Chlorpyrifos-methyl	Environmental Protection Agency, 1994,
		- DDVP	EPA Method 8141 A
		0.1 µg/L to 5 µg/L	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent **Laboratory Status** ☐ Site ☐ Temporary ☐ Mobile Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used 4 Wastewater Pesticide residues In - house method: STM 04-067 (cont.) Organophosphate group: based on United States Environmental - Demeton-S-methyl Protection Agency, 1996, - Diazinon EPA Method 3510 C and United States - Dicrotophos Environmental Protection Agency, 1994, - Dimethoate EPA Method 8141 A - EPN - Ethion - Fenitrothion - Malathion - Methidathion - Mevinphos - Parathion-ethyl - Parathion-methyl - Phorate - Phosalone

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 $0.1 \,\mu\text{g/L}$ to $5 \,\mu\text{g/L}$

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
4	Wastewater	Pesticide residues	In - house method : STM 04-067
(cont.)		Organophosphate group :	based on United States Environmental
		- Pirimiphos-ethyl	Protection Agency, 1996,
		- Pirimiphos-methyl	EPA Method 3510 C and United States
		- Profenofos	Environmental Protection Agency, 1994,
		- Prothiophos	EPA Method 8141 A
		- Triazophos	
		0.1 μg/L to 5 μg/L	
		Polycyclic Aromatic Hydrocarbons	In - house method : STM 04-102
		- 1-Methylnaphthalene	based on Standard Methods for the
		- 2-Methylnaphthalene	Examination of Water and Wastewater,
		- Acenaphthene	APHA, AWWA & WEF, 23 rd ed., 2017,
		- Acenaphthylene	part 6440 C, part 6410 B
		- Anthracene	
		0.01 µg/L to 10 µg/L	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Mobile ☐ Site ☐ Temporary **Laboratory Status** Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used 4 Wastewater Polycyclic Aromatic Hydrocarbons In-house method: STM 04-102 - Benzo(a)anthracene based on Standard Methods for the (cont.) - Benzo(a)pyrene Examination of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, - Benzo(b)fluoranthene part 6440 C, part 6410 B - Benzo(ghi)perylene - Benzo(k)fluoranthene - Chrysene - Dibenzo(a,h)anthracene - Fluoranthene - Fluorene - Indeno(1,2,3-cd)pyrene - Naphthalene - Phenanthrene - Pyrene 0.01 µg/L to 10 µg/L - Benzo(bk)fluoranthene $0.02 \, \mu g/L$ to $20 \, \mu g/L$

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
4	Wastewater	Total Petroleum Hydrocarbons	In - house method : STM 04-071
(cont.)		- TPH (C _{>8} - C ₁₆)	based on United States Environmental
		- TPH (C _{>16} - C ₃₅)	Protection Agency, 1996,
		- TPH (C ₁₀ - C ₁₄)	EPA Method 3510 C and United States
		- TPH (C ₁₅ - C ₂₈)	Environmental Protection Agency, 2007,
		- TPH (C ₂₉ - C ₃₆)	EPA Method 8015 C
		10 μg/L to 5 000 μg/L	
5	Sea water	- Mercury	In - house method : STM 05-007
		0.05 µg/L to 5 µg/L	based on United States
			Environmental Protection Agency,
			2002, EPA Method 1631, Revision E
		- Total coliform	Standard Methods for the Examination
		MPN/100 mL	of Water and Wastewater, APHA,
			AWWA & WEF, 23 rd ed., 2017,
			part 9221 B

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Mobile ☐ Site ☐ Temporary **Laboratory Status** Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used Standard Methods for the Examination 5 Sea water - Fecal coliform (cont.) cfu/100 mL of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017. part 9222 D Standard Methods for the Examination - Fecal Streptococcus cfu/100 mL of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017. part 9230 C - Enterococcus spp. cfu/100 mL 6 Swimming pool water - Total coliform Standard Methods for the Examination MPN/100 mL of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9221 B - E. coli Standard Methods for the Examination Detected or not detected of Water and Wastewater, APHA, AWWA & WEF. 23rd ed., 2017. part 9221 B, F

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
6	Swimming pool water	- Fecal coliform	Standard Methods for the Examination
(cont.)		Detected or not detected	of Water and Wastewater, APHA,
			AWWA & WEF, 23 rd ed., 2017,
			part 9221 B, E
		- Staphylococcus aureus	In - house method : STM 01-054
		Detected or not detected	base on Standard Methods for the
			Examination of Water and Wastewater,
			APHA, AWWA & WEF, 23 rd ed., 2017,
			part 9213 B and FDA Bacteriological
			Analytical Manual online, Chapter 12,
			2016
		- Salmonella spp.	ISO 19250 : 2010
		Detected or not detected	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent Laboratory Status ☐ Site ☐ Temporary ☐ Mobile Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used 6 Swimming pool water - Standard plate count Standard Methods for the Examination (cont.) cfu/mL of Water and Wastewater, APHA, AWWA & WEF, 23rd ed., 2017, part 9215 B 7 Air - Workplace air - Aerobic plate count Compendium of Methods for the cfu/15 min Microbiological Examination of Foods, 5th ed., 2015, chapter 3 Item 3.71 and chapter 8 (Exclude sampling) - Yeast and Mold count Compendium of Methods for the cfu/15 min Microbiological Examination of Foods, 5th ed., 2015, chapter 3 Item 3.71 and chapter 21 (Exclude sampling)

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☑ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
7	Air		
(cont.)	- Workplace air	- Benzene	In - house method : STM 04-032
		0.04 mg/m ³ to 1 000 mg/m ³	based on NIOSH Manual of Analytical
		(0.01 ppm to 313 ppm)	Methods, 4 th ed., NMAM, method 1501,
			Issue 3, 2003 (Include sampling)
		- Toluene	
		0.04 mg/m ³ to 1 000 mg/m ³	
		(0.01 ppm to 265 ppm)	
		- Total – Xylene	
		0.15 mg/m ³ to 3 000 mg/m ³	
		(0.03 ppm to 691 ppm)	
		- o-Xylene	
		- m-Xylene	
		- p-Xylene	
		0.05 mg/m ³ to 1 000 mg/m ³	
		(0.01 ppm to 230 ppm)	

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Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☑ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
7	Air		
(cont.)	- Workplace air	- Total dust	In - house method : STM 04-049
		0.15 mg/filter to 2.0 mg/filter	based on NIOSH Manual of Analytical
			Method, 4 th ed., NMAM, method 0500
			Issue 2, 1994 (Exclude sampling)
		- Total dust	In - house method : STM 04-049
		0.15 mg/m ³ to 285 mg/m ³	based on NIOSH Manual of Analytical
			Method, 4 th ed., NMAM, method 0500
			Issue 2, 1994 (Include sampling)
		- Respirable dust	In - house method : STM 04-050
		0.15 mg/filter to 2.0 mg/filter	based on NIOSH Manual of Analytical
			Method, 4 th ed., NMAM, method 0600
			Issue 3, 1998 (Exclude sampling)

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ✓ Permanent ✓ Site □	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
7	Air		
(cont.)	- Workplace air	- Respirable dust	In - house method : STM 04-050
		0.15 mg/m ³ to 100 mg/m ³	based on NIOSH Manual of Analytical
			Method, 4 th ed., NMAM, method 0600
			Issue 3, 1998 (Include sampling)
	- Environmental air	- Total suspended particulate	In - house method : STM 04-051
		0.5 mg/filter to 400 mg/filter	based on U.S. Environmental Protection
			Agency 40 CFR, method 50, Appendix B,
			revised as of July 1, 2008
			(Exclude sampling)
		- Total suspended particulate	In - house method : STM 04-051
		0.002 mg/m³ to 0.25 mg/m³	based on U.S. Environmental Protection
			Agency 40 CFR, method 50, Appendix B,
			revised as of July 1, 2008
			(Include sampling)

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☑ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
7	Air		
(cont.)	- Environmental air	- Particulate matter (PM-10)	In - house method : STM 04-052
		0.5 mg/filter to 200 mg/filter	based on U.S. Environmental Protection
			Agency 40 CFR, method 50, Appendix J,
			revised as of July 1, 2008
			(Exclude sampling)
		- Particulate matter (PM-10)	In - house method : STM 04-052
		0.002 mg/m ³ to 0.25 mg/m ³	based on U.S. Environmental Protection
			Agency 40 CFR, method 50, Appendix J,
			revised as of July 1, 2008
			(Include sampling)
	- Emission from	- Total suspended particulate	In - house method : STM 04-053
	stationary sources	0.5 mg/filter to 393 mg/filter	based on U.S. Environmental Protection
			Agency 40 CFR method 5, Appendix A,
			2020 (Exclude sampling)

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☑ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
7	Air		
(cont.)	- Emission from	- Total suspended particulate	In - house method : STM 04-053
	stationary sources	At Actual O ₂ :	based on U.S. Environmental Protection
		0.5 mg/m ³ to 488 mg/m ³	Agency 40 CFR method 1-5, Appendix A,
		At 7% O ₂ :	2020 (Include sampling)
		0.4 mg/m ³ to 1 384 mg/m ³	
		- Hydrogen chloride	In - house method : STM 04-054
		At Actual O ₂ :	based on U.S. Environmental Protection
		0.008 mg/m³ to 250 mg/m³	Agency 40 CFR, method 1-4, 26, 2020
		(0.005 ppm to 167 ppm)	(Include sampling)
		At 7% O ₂ :	
		0.006 mg/m³ to 709 mg/m³	
		(0.004 ppm to 475 ppm)	

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Scope of Testing Laboratory Accreditation

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Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☑ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
7	Air		
(cont.)	- Emission from	- Hydrogen fluoride	In - house method : STM 04-054
	stationary sources	At Actual O ₂ :	based on U.S. Environmental Protection
		0.008 mg/m³ to 250 mg/m³	Agency 40 CFR, method 1-4, 26, 2020
		(0.010 ppm to 305 ppm)	(Include sampling)
		At 7% O ₂ :	
		0.006 mg/m³ to 709 mg/m³	
		(0.007 ppm to 866 ppm)	
		- Chlorine	
		At Actual O ₂ :	
		0.008 mg/m³ to 250 mg/m³	
		(0.005 ppm to 172 ppm)	
		At 7% O ₂ :	
		0.006 mg/m³ to 709 mg/m³	
		(0.004 ppm to 489 ppm)	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☑ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
7	Air		
(cont.)	- Emission from	- Sulfur dioxide	U.S. Environmental Protection
	stationary sources	At Actual O ₂ :	Agency 40 CFR, method 6C, 2017
		0.26 mg/m ³ to 1 675 mg/m ³	(Include sampling)
		(0.10 ppm to 639 ppm)	
		At 7% O ₂ :	
		0.191 mg/m³ to 4 752 mg/m³	
		(0.07 ppm to 1 813 ppm)	
		- Oxide of nitrogen	U.S. Environmental Protection
		At Actual O ₂ :	Agency 40 CFR, method 7E, 2020
		0.19 mg/m ³ to 752 mg/m ³	(Include sampling)
		(0.10 ppm to 400 ppm)	
		At 7% O ₂ :	
		0.14 mg/m³ to 2 133 mg/m³	
		(0.07 ppm to 1 134 ppm)	

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Scope of Testing Laboratory Accreditation

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Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☑ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
7	Air		
(cont.)	- Emission from	- Carbon monoxide	U.S. Environmental Protection
	stationary sources	At Actual O ₂ :	Agency 40 CFR, method 10, 2017
		0.11 mg/m ³ to 1 832 mg/m ³	(Include sampling)
		(0.10 ppm to 1 599 ppm)	
		At 7% O ₂ :	
		0.081 mg/m³ to 5 197 mg/m³	
		(0.07 ppm to 4 536 ppm)	
		- Oxygen	U.S. Environmental Protection
		2.617 mg/m³ to 275 mg/m³	Agency 40 CFR, method 3A, 2017
		(0.2 % to 21.0 %)	(Include sampling)
		- Carbon dioxide	
		3.60 mg/m ³ to 540 mg/m ³	
		(0.2 % to 30.0 %)	

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Scope of Testing Laboratory Accreditation

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Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☑ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
8	Environmental noise	- Sound level	In - house method : STM 06-001
		Equivalent sound level	based on ISO 1996-1 : 2016,
		L _{eq,T} 30 dB (A) to 130 dB (A)	Notification of the Department of
		Maximum sound level	Industrial Works, Method of measuring
		L _{max} 30 dB (A) to 130 dB (A)	nuisance period noise level, 24-hour
			average sound level and maximum sound
		- Noise level	level from plant operation, 2010,
		Background noise level	Notification of the Pollution Control
		L ₉₀ 30 dB (A) to 130 dB (A)	Board, Method of measuring the
		Non nuisance period noise level	background noise level, non nuisance
		L _{eq,T} 30 dB (A) to 130 dB (A)	period noise level, the measuring and
		Nuisance period noise level	calculation of noise level from nuisance
		L _{eq,T} 30 dB (A) to 130 dB (A)	period, the calculation of Nuisance
		Noise level	level and record form of nuisance noise
		0 dB (A) to 30 dB (A)	measurement, 2007

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Temporary ☐ Mobile Laboratory Status ☐ Site Item Test Material / Test Item / Test Method / Product Range of Testing Number Technique Used 9 Feeding stuffs - Moisture AOAC Official Methods of Analysis 2.0 g/100 g to 21.0 g/100 g 21st ed., 2019 method 930.15 - Ash AOAC Official Methods of Analysis 21st ed., 2019 method 942.05 1.0 g/100 g to 40.0 g/100 g In - house method: STM 03-019 - Protein 5.0 g/100 g to 88.0 g/100 g based on AOAC Official Methods of Analysis 21st ed., 2019, method 981.10 - Fat In - house method: STM 03-087 0.3 g/100g to 45.0 g/100 g based on AOAC Official Methods of Analysis 21st ed., 2019, method 954.02

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: \square Permanent \square Site \square	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
9	Feeding stuffs	- Carbohydrate	Method of Analysis for Nutrition
(cont.)			Labeling, AOAC, 1993, chapter 6
		- Calories	
		- Crude fiber	In - house method : STM 03-105
		0.1 g/100g to 40 g/100 g	based on AOAC Official Methods
			of Analysis 21 st ed., 2019,
			method 978.10
		- Aerobic plate count	ISO 4833-1 : 2013
		cfu/g, cfu/mL	
		- Coliforms	ISO 4831 : 2006
		MPN/g, MPN/mL	
		- Presumptive <i>E. coli</i>	ISO 7251 : 2005
		MPN/g, MPN/mL	

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Scope of Testing Laboratory Accreditation

☐ Site

☐ Temporary

☐ Mobile

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

: **☑** Permanent

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status

Test Material / Test Item / Test Method / Item Product Number Range of Testing Technique Used Feeding stuffs 9 - Salmonella spp. ISO 6579-1: 2017 / Amd.1: 2020 (cont.) Detected or not detected - Salmonella spp. AFNOR Validation, Detected or not detected Certificate SOL 37/01-06/13 and ISO 6579-1: 2017/Amd1: 2020 - Staphylococcus aureus ISO 6888-1: 1999/Amd2: 2018 cfu/g, cfu/mL - Presumptive *Bacillus cereus* ISO 7932: 2004 cfu/g, cfu/mL - Yeast and Mold count ISO 21527-1: 2008, cfu/g, cfu/mL ISO 21527-2: 2008

- Clostridium perfringens

cfu/g, cfu/mL

cfu/g, cfu/mL

- Enterobacteriaceae

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ISO 7937: 2004

ISO 21528-2: 2017

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Scope of Testing Laboratory Accreditation

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Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
9	Feeding stuffs	- Coliforms	ISO 4832 : 2006
(cont.)		cfu/g, cfu/mL	
		- E.coli cfu/g, cfu/mL	ISO 16649-2 : 2001
		- Listeria monocytogenes cfu/g	ISO 11290-2 : 2017
		- Listeria spp. cfu/g.	
		- Listeria monocytogenes Detected or not detected	ISO 11290-1 : 2017
		- Listeria spp. Detected or not detected	

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Scope of Testing Laboratory Accreditation

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Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
9	Feeding stuffs	- Mercury	In - house method : STM 05-011
(cont.)		0.005 mg/kg to 0.20 mg/kg	based on United State
			Environmental Protection Agency,
			2007, EPA Method 7474
		- Calcium	In - house method : STM 05-013
		- Magnesium	based on AOAC Official Methods
		- Phosphorus	of Analysis 21 st ed., 2019,
		- Sodium	method 984.27
		20.0 mg/kg to 20 000 mg/kg	
		- Copper	
		- Sulfur	
		0.20 mg/kg to 240 mg/kg	
		- Iron	
		1.00 mg/kg to 250 mg/kg	
		- Manganese	
		0.30 mg/kg to 40 mg/kg	

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Scope of Testing Laboratory Accreditation

Laboratory Name : ALS Laboratory Group (Thailand) Co., Ltd.

Address : 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan,

Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ✓ Permanent ☐ Site ☐	Temporary Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
9	Feeding stuffs	- Potassium	In - house method : STM 05-013
(cont.)		65.0 mg/kg to 20 000 mg/kg	based on AOAC Official Methods
		- Zinc	of Analysis 21 st ed., 2019,
		0.50 mg/kg to 200 mg/kg	method 984.27
		- Antimony	In - house method : STM 05-040
		- Arsenic	based on AOAC Official Methods
		- Cadmium	of Analysis 21 st ed., 2019,
		- Chromium	method 2011.19
		- Lead	
		- Molybdenum	
		- Selenium	
		- Tin	
		- Nickel	
		- Aluminium	
		0.50 mg/kg to 30 mg/kg	

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Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
9	Feeding stuffs	- Mercury	In – house method : STM 05-045
(cont.)		0.005 mg/kg to 1.00 mg/kg	based on United State Environmental
			Protection Agency, 2007,
			EPA Method 7473
		- Melamine	In - house method : STM 03-091
		- Ammeline	based on USFDA, Laboratory
		- Ammelide	InformationBulletin LIB No.4423,
		- Cyanuric acid screening	Vol.24 ; 2008
		1.00 mg/kg to 100.0 mg/kg	
		- Ochratoxin A	In - house method : STM 03-092
		0.50 µg/kg to 25.00 µg/kg	based on AOAC Official Methods
			of Analysis 21 st ed., 2019,
			method 2000.03

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Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
9	Feeding stuffs	- Total aflatoxins	In - house method : STM 03-093
(cont.)		5.2 μg/kg to 104 μg/kg	based on AOAC Official Methods
			of Analysis 21 st ed., 2019,
			method 991.31
		- Aflatoxins	In - house method : STM 03-093
		B ₁ 2 μg/kg to 40 μg/kg	based on AOAC Official Methods
		B ₂ 0.6 μg/kg to 12 μg/kg	of Analysis 21 st ed., 2019,
		G ₁ 2 μg/kg to 40 μg/kg	method 991.31
		G ₂ 0.6 μg/kg to 12 μg/kg	
10	Pet food	- Moisture	AOAC Official Methods of Analysis
		46.0 g/100 g to 91.0 g/100 g	21 st ed., 2019 method 930.15
		- Ash	AOAC Official Methods of Analysis
		0.20 g/100 g to 4.40 g/100 g	21 st ed., 2019 method 942.05

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Suan Luang, Bangkok 10250

Accreditation Number : Testing - 0009

Laboratory Status		: ☑ Permanent ☐ Site ☐	Temporary \square Mobile
Item	Test Material /	Test Item /	Test Method /
Number	Product	Range of Testing	Technique Used
10	Pet food	- Protein	In – house method : STM 03-019
(cont.)		3.0 g/100 g to 31.0 g/100 g	based on AOAC Official Methods
			of Analysis 21 st ed., 2019,
			method 981.10
		- Fat	In – house method : STM 03-087
		0.1 g/100 g to 11.0 g/100 g	based on AOAC Official Methods
			of Analysis 21 st ed., 2019,
			method 954.02
		- Carbohydrate	Method of Analysis for Nutrition
			Labeling, AOAC, 1993, chapter 6
		- Calories	
		- Crude fiber	In – house method : STM 03-105
		0.01 g/100 g to 5.80 g/100 g	based on AOAC Official Methods
			of Analysis 21 st ed., 2019,
			method 978.10

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Accreditation Number : Testing - 0009

: **☑** Permanent ☐ Site ☐ Temporary ☐ Mobile **Laboratory Status** Item Test Material / Test Item / Test Method / Number Product Range of Testing Technique Used - Total nitrogen 11 Feather meal In - house method : STM 03-019 (Calculated as N) based on AOAC Official Methods of Analysis 21st ed., 2019, 11 g/100 g to 14 g/100 g method 981.10 - Protein 70 g/100 g to 88 g/100 g

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