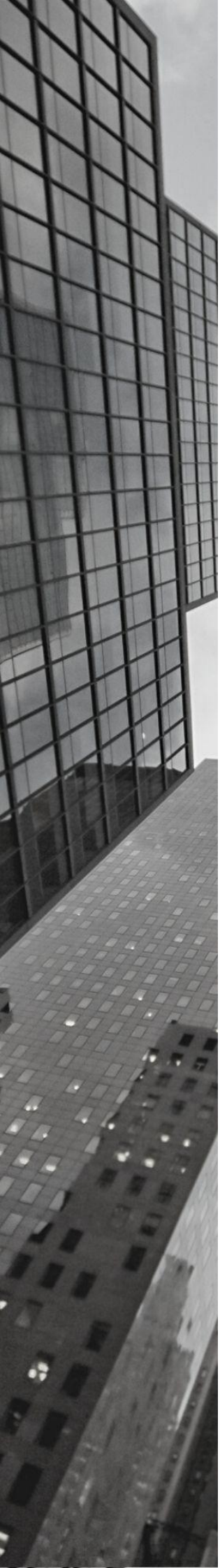


APPENDIX-1

หนังสือเห็นชอบรายงานฯ และใบอนุญาตโครงการ

เอกสาร 1-1	หนังสือแจ้งผลการพิจารณารายงานการวิเคราะห์ผลกระทบสิ่งแวดล้อม
เอกสาร 1-2	มาตรการป้องกันและแก้ไขผลกระทบสิ่งแวดล้อม และมาตรการติดตามตรวจสอบผลกระทบสิ่งแวดล้อม
เอกสาร 1-3	ใบรับรองการก่อสร้างอาคาร ดัดแปลงอาคาร หรือเคลื่อนย้ายอาคาร (แบบ อ.6)
เอกสาร 1-4	หนังสือสำคัญการจดทะเบียนอาคารชุด (อ.ช.10)



APPENDIX-1

เอกสาร 1-3 ใบรับรองการก่อสร้างอาคาร ดัดแปลงอาคาร หรือเคลื่อนย้ายอาคาร (แบบ อ.6)

เอกสารสำคัญ
โปรดอย่าทำสูญหาย

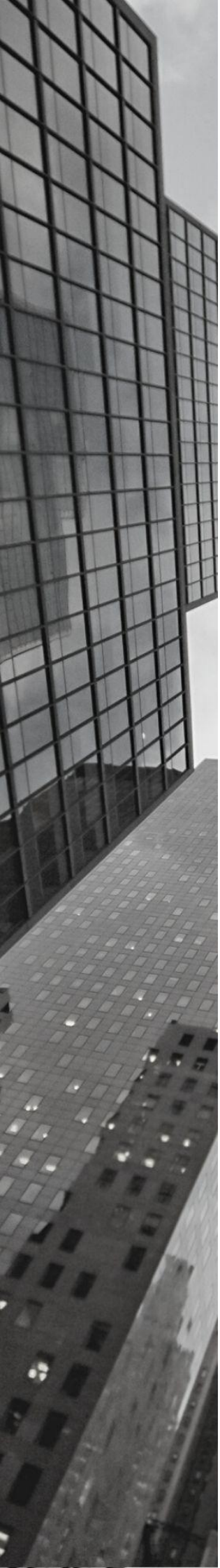
ใบรับรอง
อาคารชุดพักอาศัย
สระว่ายน้ำ-จอดรถยนต์

ต้นฉบับ
แบบ อ.6
1567/475

ใบรับรองการก่อสร้างอาคาร ดัดแปลงอาคาร หรือเคลื่อนย้ายอาคาร

เลขที่ ขวน. 4/2559 (อ.6)

ใบรับรองฉบับนี้แสดงว่า บริษัท อัพเพอร์ สวีท จำกัด โดยนายอุดม ศรีชวาลา เจ้าของอาคาร/ผู้ครอบครองอาคาร



APPENDIX-1

เอกสาร 1-4 หนังสือสำคัญการจดทะเบียนอาคารชุด (อ.ช.10)

(อ.ช.๑๐)

หนังสือสำคัญการจดทะเบียนอาคารชุด

สำนักงานที่ดินกรุงเทพมหานคร สาขาพระโขนง

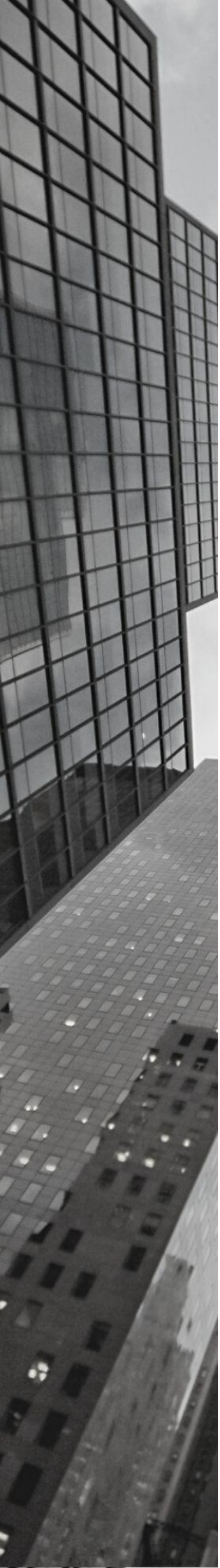
วันที่ ๑๖ เดือน มิถุนายน พ.ศ. ๒๕๕๙

หนังสือนี้ออกให้เพื่อแสดงว่าพนักงานเจ้าหน้าที่ได้รับจดทะเบียนอาคารชุดตามพระราชบัญญัติอาคารชุด พ.ศ. ๒๕๒๒ ตามคำขอของผู้มีกรรมสิทธิ์ในที่ดินและอาคาร ชื่อ บริษัท อัพเพอร์ สวีท จำกัด

[redacted]

เจ้าพนักงานที่ดินชำนาญงาน

๑๖ ก.พ. ๒๕๖๔



APPENDIX-2

เอกสารประกอบการปฏิบัติตามมาตรการฯ

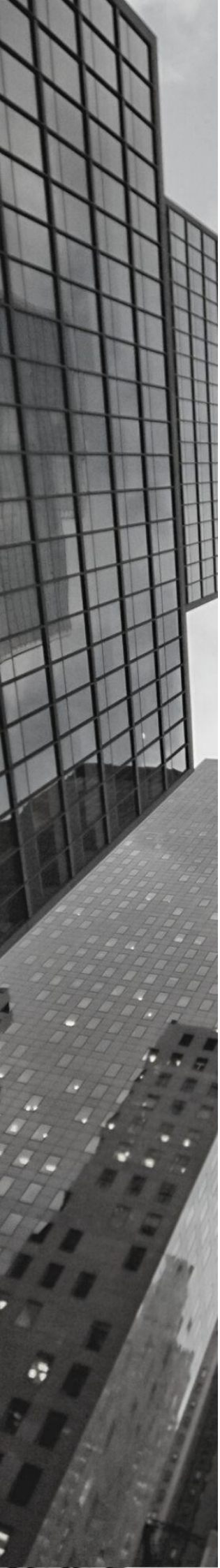
เอกสาร 2-1 ตัวอย่างเอกสารการตรวจสอบระบบบำบัดน้ำเสีย

วัน เดือน ปี	สถิติและข้อมูลที่เก็บจากแหล่งกำเนิดมลพิษ															ลายมือชื่อ ผู้บันทึก
	ปริมาณการใช้ไฟฟ้าของระบบบำบัดน้ำเสีย (หน่วย)	ปริมาณน้ำใช้ในทุกกิจกรรมของแหล่งกำเนิดมลพิษ (ลบ.ม.)	ปริมาณน้ำเสียที่เข้าระบบบำบัดน้ำเสีย (ลบ.ม.)	การระบายน้ำทิ้งจากระบบบำบัดน้ำเสีย (ระบาย/ไม่ระบาย)	ปริมาณสารเคมีหรือสารสกัดชีวภาพที่ใช้ (ชื่อ/ปริมาณ) (ลิตรหรือกิโลกรัม)	การทำงานของระบบบำบัดน้ำเสีย							ปริมาณตะกอนส่วนเกินที่เกิดขึ้นจากระบบบำบัดน้ำเสียที่นำไปกำจัด (ลบ.ม.)	ปัญหาอุปสรรคและแนวทางแก้ไข	
						ระบบบำบัดน้ำเสีย (ปกติ/ผิดปกติ)	เครื่องสูบน้ำ (ปกติ/ผิดปกติ)	เครื่องเติมอากาศ (ปกติ/ผิดปกติ)	เครื่องกวน/ผสมน้ำเสีย (ปกติ/ผิดปกติ)	เครื่องกวน/ผสมสารเคมี (ปกติ/ผิดปกติ)	เครื่องสูบตะกอน (ปกติ/ผิดปกติ)	อื่นๆ (ระบุ) (ปกติ/ไม่ปกติ)			
1/12/2025	-	33	26.4	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
2/12/2025	-	28	22.4	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
3/12/2025	-	27	21.6	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
4/12/2025	-	28	22.4	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
5/12/2025	-	27	21.6	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
6/12/2025	-	27	21.6	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
7/12/2025	-	32	25.6	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
8/12/2025	-	31	24.8	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
9/12/2025	-	28	22.4	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
10/12/2025	-	54	43.2	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
11/12/2025	-	6	4.8	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
12/12/2025	-	32	25.6	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
13/12/2025	-	24	19.2	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
14/12/2025	-	30	24	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
15/12/2025	-	34	27.2	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
16/12/2025	-	27	21.6	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน

*วันที่ปริมาณน้ำน้อยคือวันที่ตึกใช้น้ำน้อย

วัน เดือน ปี	สถิติและข้อมูลที่เก็บจากแหล่งกำเนิดมลพิษ															ลายมือชื่อ ผู้บันทึก
	ปริมาณ การใช้ ไฟฟ้าของ ระบบ บำบัดน้ำ เสีย (หน่วย)	ปริมาณ น้ำใช้ ในทุกกิจกรรม ของ แหล่งกำเนิด มลพิษ (ลบ.ม.)	ปริมาณน้ำ เสียที่เข้า ระบบ บำบัดน้ำเสีย (ลบ.ม.)	การระบาย น้ำทิ้งจากระบบ บำบัดน้ำเสีย (ระบาย/ ไม่ระบาย)	ปริมาณ สารเคมีหรือ สารสกัด ชีวภาพที่ใช้ (ชื่อ/ปริมาณ) (ลิตรหรือ กิโลกรัม)	การทำงานของระบบบำบัดน้ำเสีย							ปริมาณ ตะกอน ส่วนเกิน ที่เกิดขึ้นจาก ระบบบำบัด น้ำเสียที่นำไป กำจัด (ลบ.ม.)	ปัญหา อุปสรรค และ แนวทาง แก้ไข	
						ระบบบำบัด น้ำเสีย (ปกติ/ผิดปกติ)	เครื่อง สูบน้ำ (ปกติ/ ผิดปกติ)	เครื่องเติม อากาศ (ปกติ/ ผิดปกติ)	เครื่องกวน/ ผสมน้ำเสีย (ปกติ/ ผิดปกติ)	เครื่องกวน/ ผสมสารเคมี (ปกติ/ ผิดปกติ)	เครื่องสูบ ตะกอน (ปกติ/ ผิดปกติ)	อื่นๆ (ระบุ) (ปกติ/ ไม่ปกติ)			
17/12/2025	-	28	22.4	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
18/12/2025	-	32	25.6	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
19/12/2025	-	36	28.8	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
20/12/2025	-	13	10.4	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
21/12/2025	-	32	25.6	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
22/12/2025	-	29	23.2	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
23/12/2025	-	28	22.4	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
24/12/2025	-	32	25.6	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
25/12/2025	-	27	21.6	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
26/12/2025	-	26	20.8	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
27/12/2025	-	23	18.4	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
28/12/2025	-	41	32.8	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
29/12/2025	-	15	12	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
30/12/2025	-	28	22.4	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน
31/12/2025	-	18	14.4	ระบาย	-	ปกติ	ปกติ	ปกติ	-	-	ปกติ	-	-	-	วัน

*วันที่ปริมาณน้ำน้อยคือวันที่ดึกใช้น้ำน้อย

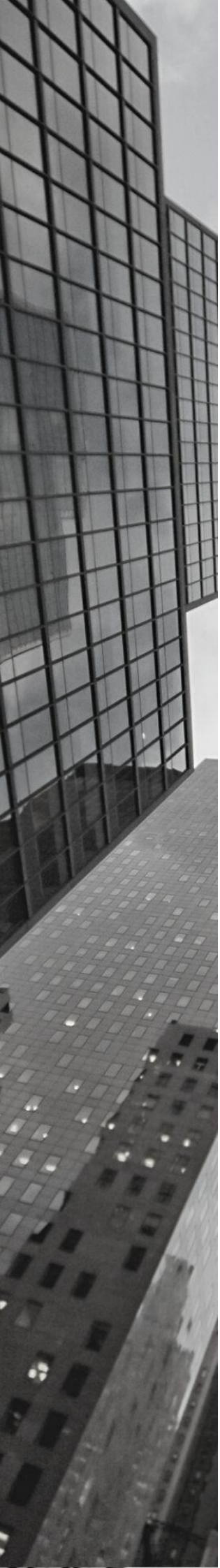


APPENDIX-3

หนังสืออนุญาตขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เอกสาร 3-1 ใบรายงานผลการตรวจวิเคราะห์คุณภาพน้ำทิ้ง

เอกสาร 3-2 ใบรายงานผลการตรวจวิเคราะห์คุณภาพน้ำสระว่ายน้ำ



APPENDIX-3

เอกสาร 3-1 ใบรายงานผลการตรวจวิเคราะห์คุณภาพน้ำทิ้ง

บริษัท ศูนย์วิเคราะห์น้ำ จำกัด
WATER ANALYSIS CENTER COMPANY LIMITED
1/94 หมู่ 5 ต. คานหาม อ. อุทัย จ. พระนครศรีอยุธยา 13210
1/94 Moo 5, T.Kanham, A.U-Thai, Ayutthaya 13210, Thailand
Tel : 035-226-383 , 035-800-593 Fax : 035-800-594

TESTING
No.0029

ANALYSIS REPORT

Customer Name	:บริษัท พรีเสิร์ช จำกัด				
Address	:30 ซอยปุณณวิถี 24 แขวงบางจาก เขตพระโขนง กรุงเทพมหานคร 10260				
Contact	:คุณเบิญจพร อินทรเพชร (แพท)	**Phone**	:080-102-2495	**E.mail**	:b.intorpetch@gmail.com
Samply Type	: Waste water	**Sample Site#**	: โครงการ อัพเพอร์ สวีท	**Sampling Method#**	: Grab
Sampling Date#	: 25/07/2025	**Sampling By#**	: TANAKIT (ว-190-จ-0020)	**Receive Date**	: 25/07/2025
Analysis Date	: 25/07/2025-02/08/2025	**Report Date**	: 02/08/2025	**Report No.**	: R 05423/68

Parameter	Unit	Method	WC 06504/68 น้ำทิ้งหลังผ่านระบบบำบัด	Standard *
pH	-	APHA, AWWA & WEF, 24th ed., 2023, part 4500-H+ B	7.6 (25°C)	5.5-9.0
BOD	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500-O G	58	≤ 40
Total Suspended Solid	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	10	≤ 50
Total Dissolved Solid	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	352	≤ 1,300
Settleable Solids	mL/L	Volumetric	< 0.1 #	-
Oil & Grease	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 5520 D	< 2	≤ 20
Total Kjeldahl Nitrogen	mg/L as N	APHA, AWWA & WEF, 24th ed., 2023, part4500-NH_3 C, N_{org} B	35	≤ 40
Sulfide	mg/L as S^{2-}	APHA, AWWA & WEF, 24th ed., 2023, part 4500-S^{2-} F	< 0.10 #	≤ 1.0
Total Coliform Bacteria	MPN/100 mL	Standard Total Coliform Fermentation	4.9×10^5 #	-
Sample Characterization	-	Observation	เทาขุ่นมีตะกอน	

Remark : In-house method : TM 001 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-H+ B
In-house method : TM 041 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500-O G
Limit of Quantitation ; LOQ (BOD=4 mg/L, SS=10 mg/L, TDS=50 mg/L, Oil & Grease=2 mg/L, TKN=5 mg/L as N,)
It is outside the scope of ISO/IEC 17025
* ประกาศกระทรวงทรัพยากรธรรมชาติและสิ่งแวดล้อม เรื่อง กำหนดมาตรฐานควบคุมการระบายน้ำทิ้งจากอาคารบางประเภทและบางขนาด (อาคารประเภท ค) พ.ศ.2567

-: End Of Report :-

Laboratory Staff
.....
(Miss. Wanwilai Wongyai)
Chemist
ว-190-จ-0037

Approved By
.....
(Mrs. Neeramol Phadungsong)
General Manager
ว-190-ค-0001

The results relate only to the items tested. Test report shall not be reproduced except in full, without written approval of the laboratory

บริษัท ศูนย์วิเคราะห์น้ำ จำกัด

WATER ANALYSIS CENTER COMPANY LIMITED

1/94 หมู่ 5 ต. คานหาม อ. อุทัย จ. พระนครศรีอยุธยา 13210
1/94 Moo 5, T.Kanham, A.U-Thai, Ayutthaya 13210, Thailand
Tel : 035-226-383 , 035-800-593 Fax : 035-800-594

TESTING
No.0029

ANALYSIS REPORT

Customer Name	:บริษัท พรีเสิร์ช จำกัด				
Address	:30 ซอยปุณณวิถี 24 แขวงบางจาก เขตพระโขนง กรุงเทพมหานคร 10260				
Contact	:คุณเบ็ญจพร อินทรเพชร (แพท)	**Phone**	:080-102-2495	**E.mail**	:b.intorpetch@gmail.com
Samply Type	: Waste water	**Sample Site#**	: โครงการ อัพเพอร์ สวีท	**Sampling Method#**	: Grab
Sampling Date#	: 25/08/2025	**Sampling By#**	: Rungsasikorn (ว-190-จ-0002)	**Receive Date**	: 25/08/2025
Analysis Date	: 25/08/2025-01/09/2025	**Report Date**	: 01/09/2025	**Report No.**	: R 06207/68

Parameter	Unit	Method	WC 07427/68 น้ำทิ้งหลังผ่านระบบบำบัด	Standard *
pH	-	APHA, AWWA & WEF, 24th ed., 2023, part 4500-H+ B	7.4 (25°C)	5.5-9.0
BOD	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500-O G	47	≤ 40
Total Suspended Solid	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	20	≤ 50
Total Dissolved Solid	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	386	≤ 1,300
Settleable Solids	mL/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 F	< 0.1 #	-
Oil & Grease	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 5520 D	< 2	≤ 20
Total Kjeldahl Nitrogen	mg/L as N	APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH_3 C, N_{org} B	44	≤ 40
Sulfide	mg/L as S^{2-}	APHA, AWWA & WEF, 24th ed., 2023, part 4500-S^{2-} F	< 0.10 #	≤ 1.0
Total Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	5.4×10^6 #	-
Sample Characterization	-	Observation	เทาขุ่นมีตะกอน	

Remark : In-house method : TM 001 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-H+ B
In-house method : TM 041 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500-O G
Limit of Quantitation ; LOQ (BOD=4 mg/L, SS=10 mg/L, TDS=50 mg/L, Oil & Grease=2 mg/L, TKN=5 mg/L as N,)
It is outside the scope of ISO/IEC 17025
* ประกาศกระทรวงทรัพยากรธรรมชาติและสิ่งแวดล้อม เรื่อง กำหนดมาตรฐานควบคุมการระบายน้ำทิ้งจากอาคารบางประเภทและบางขนาด (อาคารประเภท ค) พ.ศ.2567

-: End Of Report :-

Laboratory Staff
(Miss. Orawan Sritai)
Chemist
ว-190-จ-0007

Approved By
(Mrs. Neeramol Phadungsong)
General Manager
ว-190-ค-0001

The results relate only to the items tested. Test report shall not be reproduced except in full, without written approval of the laboratory

บริษัท ศูนย์วิเคราะห์น้ำ จำกัด
WATER ANALYSIS CENTER COMPANY LIMITED
1/94 หมู่ 5 ต. คานหาม อ. อุทัย จ. พระนครศรีอยุธยา 13210
1/94 Moo 5, T.Kanham, A.U-Thai, Ayutthaya 13210, Thailand
Tel : 035-226-383 , 035-800-593 Fax : 035-800-594

TESTING
No.0029

ANALYSIS REPORT

Customer Name	:บริษัท พรีเสิร์ช จำกัด				
Address	:30 ซอยปุณณวิถี 24 แขวงบางจาก เขตพระโขนง กรุงเทพมหานคร 10260				
Contact	:คุณเบ็ญจพร อินทรเพชร (แพท)	**Phone**	:080-102-2495	**E.mail**	:b.intorpetch@gmail.com
Samply Type	: Waste water	**Sample Site#**	: โครงการ อัพเพอร์ สวีท	**Sampling Method#**	: Grab
Sampling Date#	: 16/09/2025	**Sampling By#**	: TANAKIT (ว-190-จ-0020)	**Receive Date**	: 16/09/2025
Analysis Date	: 16-25/09/2025	**Report Date**	: 25/09/2025	**Report No.**	: R 06856/68

Parameter	Unit	Method	WC 08227/68 น้ำทิ้งหลังผ่านระบบบำบัด	Standard *
pH	-	APHA, AWWA & WEF, 24th ed., 2023, part 4500-H+ B	7.3 (25°C)	5.5-9.0
BOD	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500-O G	62	≤ 40
Total Suspended Solid	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	12	≤ 50
Total Dissolved Solid	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	332	≤ 1,300
Settleable Solids	mL/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 F	< 0.1 #	-
Oil & Grease	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 5520 D	10	≤ 20
Total Kjeldahl Nitrogen	mg/L as N	APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH_3 C, N_{org} B	38	≤ 40
Sulfide	mg/L as S^{2-}	APHA, AWWA & WEF, 24th ed., 2023, part 4500-S^{2-} F	< 0.10 #	≤ 1.0
Total Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	1.3 x 10^6 #	-
Sample Characterization	-	Observation	เทาขุ่นมีตะกอน	

Remark :In-house method : TM 001 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-H+ B
In-house method : TM 041 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500-O G
Limit of Quantitation ; LOQ (BOD=4 mg/L, SS=10 mg/L, TDS=50 mg/L, Oil & Grease=2 mg/L, TKN=5 mg/L as N,)
It is outside the scope of ISO/IEC 17025
* ประกาศกระทรวงทรัพยากรธรรมชาติและสิ่งแวดล้อม เรื่อง กำหนดมาตรฐานควบคุมการระบายน้ำทิ้งจากอาคารบางประเภทและบางขนาด (อาคารประเภท ค) พ.ศ.2567

-: End Of Report :-

Laboratory Staff
.....
(Miss. Ronnakorn Padungwieng)
Chemist
ว-190-จ-0010

Approved By
.....
(Mrs. Neeramol Phadungsong)
General Manager
ว-190-ค-0001

The results relate only to the items tested. Test report shall not be reproduced except in full, without written approval of the laboratory

บริษัท ศูนย์วิเคราะห์น้ำ จำกัด
WATER ANALYSIS CENTER COMPANY LIMITED
1/94 หมู่ 5 ต. คานหาม อ. อุทัย จ. พระนครศรีอยุธยา 13210
1/94 Moo 5, T.Kanham, A.U-Thai, Ayutthaya 13210, Thailand
Tel : 035-226-383 , 035-800-593 Fax : 035-800-594

TESTING
No.0029

ANALYSIS REPORT

Customer Name	:บริษัท พรีเสิร์ช จำกัด				
Address	:30 ซอยปุณณวิถี 24 แขวงบางจาก เขตพระโขนง กรุงเทพมหานคร 10260				
Contact	:คุณเบ็ญจพร อินทรเพชร (แพท)	**Phone**	:080-102-2495	**E.mail**	:b.intorpetch@gmail.com
Samply Type	: Waste water	**Sample Site#**	: โครงการ อัพเพอร์ สวีท	**Sampling Method#**	: Grab
Sampling Date#	: 28/10/2025	**Sampling By#**	: JITTAWEE (ว-190-จ-0028)	**Receive Date**	: 28/10/2025
Analysis Date	: 28/10/2025-04/11/2025	**Report Date**	: 04/11/2025	**Report No.**	: R 07918/68

Parameter	Unit	Method	WC 09534/68 น้ำทิ้งหลังผ่านระบบบำบัด	Standard *
pH	-	APHA, AWWA & WEF, 24th ed., 2023, part 4500-H^+ B	7.5 (25°C)	5.5-9.0
BOD	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500-O G	52	≤ 40
Total Suspended Solid	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	13	≤ 50
Total Dissolved Solid	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	282	≤ 1,300
Settleable Solids	mL/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 F	< 0.1 #	-
Oil & Grease	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 5520 D	8	≤ 20
Total Kjeldahl Nitrogen	mg/L as N	APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH_3 C, N_{org} B	44	≤ 40
Sulfide	mg/L as S^{2-}	APHA, AWWA & WEF, 24th ed., 2023, part 4500-S^{2-} F	< 0.10 #	≤ 1.0
Total Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	3.3×10^5 #	-
Sample Characterization	-	Observation	เทาขุ่นมีตะกอน	

Remark :In-house method : TM 001 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-H^+ B
In-house method : TM 041 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500-O G
Limit of Quantitation ; LOQ (BOD=4 mg/L, SS=10 mg/L, TDS=50 mg/L, Oil & Grease=2 mg/L, TKN=5 mg/L as N,)
It is outside the scope of ISO/IEC 17025
* ประกาศกระทรวงทรัพยากรธรรมชาติและสิ่งแวดล้อม เรื่อง กำหนดมาตรฐานควบคุมการระบายน้ำทิ้งจากอาคารบางประเภทและบางขนาด (อาคารประเภท ค) พ.ศ.2567

-: End Of Report :-

Laboratory Staff
(Miss. Orawan Sritai)
Chemist
ว-190-จ-0007

Approved By
(Mrs. Neeramol Phadungsong)
General Manager
ว-190-ค-0001

The results relate only to the items tested. Test report shall not be reproduced except in full, without written approval of the laboratory

บริษัท ศูนย์วิเคราะห์น้ำ จำกัด

WATER ANALYSIS CENTER COMPANY LIMITED

1/94 หมู่ 5 ต. คานหาม อ. อุทัย จ. พระนครศรีอยุธยา 13210

1/94 Moo 5, T.Kanham, A.U-Thai, Ayutthaya 13210, Thailand

Tel : 035-226-383 , 035-800-593 Fax : 035-800-594

TESTING
No.0029

ANALYSIS REPORT

Customer Name	:บริษัท พรีเสิร์ช จำกัด				
Address	:30 ซอยปุณณวิถี 24 แขวงบางจาก เขตพระโขนง กรุงเทพมหานคร 10260				
Contact	:คุณเบ็ญจพร อินทรเพชร (แพท)	**Phone**	:080-102-2495	**E.mail**	:b.intorpetch@gmail.com
Samply Type	: Waste water	**Sample Site#**	: โครงการ อัพเพอร์ สวิท	**Sampling Method#**	: Grab
Sampling Date#	: 25/11/2025	**Sampling By#**	: NITHET (ว-190-จ-0027)	**Receive Date**	: 25/11/2025
Analysis Date	: 25/11/2025-04/12/2025	**Report Date**	: 04/12/2025	**Report No.**	: R 08670/68

Parameter	Unit	Method	WC 10435/68 น้ำทิ้งหลังผ่านระบบบำบัด	Standard *
pH	-	APHA, AWWA & WEF, 24th ed., 2023, part 4500-H^+ B	7.7 (25°C)	5.5-9.0
BOD	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500-O G	43	≤ 40
Total Suspended Solid	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	23	≤ 50
Total Dissolved Solid	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	276	≤ 1,300
Settleable Solids	mL/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 F	< 0.1 #	-
Oil & Grease	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 5520 D	< 2	≤ 20
Total Kjeldahl Nitrogen	mg/L as N	APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH_3 C, N_{org} B	40	≤ 40
Sulfide	mg/L as S^{2-}	APHA, AWWA & WEF, 24th ed., 2023, part 4500-S^{2-} F	< 0.10 #	≤ 1.0
Total Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	2.4×10^6 #	-
Sample Characterization	-	Observation	ขุ่นมีตะกอน	

Remark : In-house method : TM 001 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-H^+ B
In-house method : TM 041 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500-O G
Limit of Quantitation ; LOQ (BOD=4 mg/L, SS=10 mg/L, TDS=50 mg/L, Oil & Grease=2 mg/L, TKN=5 mg/L as N,)
It is outside the scope of ISO/IEC 17025
* ประกาศกระทรวงทรัพยากรธรรมชาติและสิ่งแวดล้อม เรื่อง กำหนดมาตรฐานควบคุมการระบายน้ำทิ้งจากอาคารบางประเภทและบางขนาด (อาคารประเภท ค) พ.ศ.2567

-: End Of Report :-

Laboratory Staff

(Miss. Ronnakorn Padungwieng)

Chemist

ว-190-จ-0010

Approved By

(Mrs. Neeramol Phadungsong)

General Manager

ว-190-ค-0001

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บริษัท ศูนย์วิเคราะห์น้ำ จำกัด
WATER ANALYSIS CENTER COMPANY LIMITED
1/94 หมู่ 5 ต. คานหาม อ. อุทัย จ. พระนครศรีอยุธยา 13210
1/94 Moo 5, T.Kanham, A.U-Thai, Ayutthaya 13210, Thailand
Tel : 035-226-383 , 035-800-593 Fax : 035-800-594

TESTING
No.0029

ANALYSIS REPORT

Customer Name	:บริษัท พรีเสิร์ช จำกัด				
Address	:30 ซอยปุณณวิถี 24 แขวงบางจาก เขตพระโขนง กรุงเทพมหานคร 10260				
Contact	:คุณเบ็ญจพร อินทรเพชร (แพท)	**Phone**	:080-102-2495	**E.mail**	:b.intorpetch@gmail.com
Samply Type	: Waste water	**Sample Site#**	: โครงการ อัพเพอร์ สวีท	**Sampling Method#**	: Grab
Sampling Date#	: 25/12/2025	**Sampling By#**	: MANOP (ว-190-จ-0011)	**Receive Date**	: 25/12/2025
Analysis Date	: 25/12/2025-09/01/2026	**Report Date**	: 09/01/2026	**Report No.**	: R 09553/68

Parameter	Unit	Method	WC 11543/68 น้ำทิ้งหลังผ่านระบบบำบัด	Standard *
pH	-	APHA, AWWA & WEF, 24th ed., 2023, part 4500-H+ B	7.4 (25°C)	5.5-9.0
BOD	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500-O G	47	≤ 40
Total Suspended Solid	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 D	12	≤ 50
Total Dissolved Solid	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 C	356	≤ 1,300
Settleable Solids	mL/L	APHA, AWWA & WEF, 24th ed., 2023, part 2540 F	< 0.1 #	-
Oil & Grease	mg/L	APHA, AWWA & WEF, 24th ed., 2023, part 5520 D	4	≤ 20
Total Kjeldahl Nitrogen	mg/L as N	APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH_3 C, N_{org} B	40	≤ 40
Sulfide	mg/L as S^{2-}	APHA, AWWA & WEF, 24th ed., 2023, part 4500-S^{2-} F	< 0.10 #	≤ 1.0
Total Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	7.9×10^5 #	-
Sample Characterization	-	Observation	ขุ่นมีตะกอน	

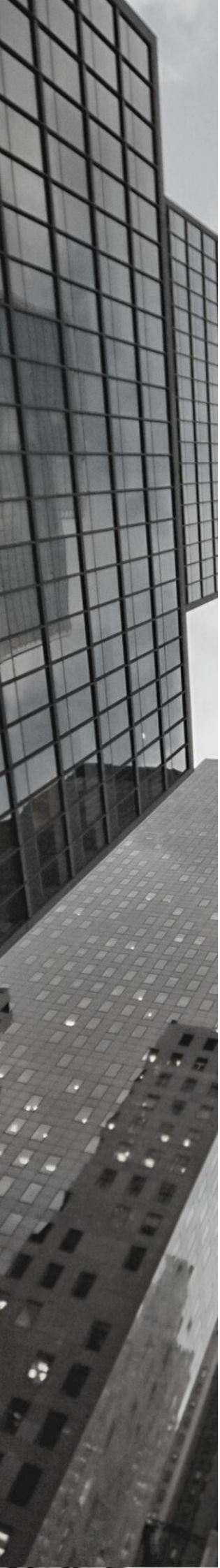
Remark : In-house method : TM 001 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-H+ B
In-house method : TM 041 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, 4500-O G
Limit of Quantitation ; LOQ (BOD=4 mg/L, SS=10 mg/L, TDS=50 mg/L, Oil & Grease=2 mg/L, TKN=5 mg/L as N,)
It is outside the scope of ISO/IEC 17025
* ประกาศกระทรวงทรัพยากรธรรมชาติและสิ่งแวดล้อม เรื่อง กำหนดมาตรฐานควบคุมการระบายน้ำทิ้งจากอาคารบางประเภทและบางขนาด (อาคารประเภท ค) พ.ศ.2567

-: End Of Report :-

Laboratory Staff
(Miss. Orawan Sritai)
Chemist
ว-190-จ-0007

Approved By
(Mrs. Neeramol Phadungsong)
General Manager
ว-190-ค-0001

The results relate only to the items tested. Test report shall not be reproduced except in full, without written approval of the laboratory



APPENDIX-3

เอกสาร 3-2 ใบรายงานผลการตรวจวิเคราะห์คุณภาพน้ำสระว่ายน้ำ

บริษัท ศูนย์วิเคราะห์น้ำ จำกัด
WATER ANALYSIS CENTER COMPANY LIMITED
1/94 หมู่ 5 ต. คานหาม อ. อุทัย จ. พระนครศรีอยุธยา 13210
1/94 Moo 5, T.Kanham, A.U-Thai, Ayutthaya 13210, Thailand
Tel : 035-226-383 , 035-800-593 Fax : 035-800-594

TESTING
No.0029

ANALYSIS REPORT

Customer Name : บริษัท พรีเสิร์ช จำกัด
Address : 30 ซอยปุณณวิถี 24 แขวงบางจาก เขตพระโขนง กรุงเทพมหานคร 10260
Contact : คุณเบิญจพร อินทรเพชร (แพท) **Phone** : 080-102-2495 **E.mail** : b.intorpetch@gmail.com
Samply Type : Water **Sample Site#** : โครงการ อัพเพอร์ สวีท **Sampling Method#** : Grab
Sampling Date# : 25/07/2025 **Sampling By#** : WAC **Receive Date** : 25/07/2025
Analysis Date : 25/07/2025-05/08/2025 **Report Date** : 05/08/2025 **Report No.** : RWS 02231/68

Parameter	Unit	Method	PWS 04472/68 สระว่ายน้ำ	Standard *
Alkalinity	mg/L as $CaCO_3$	Titration	6 #	80 - 100
Combined Chlorine	mg/L as Cl_2	Calculation	1.20 #	0.5 - 1.0
Cyanuric acid	mg/L	Photometric	15 #	30 - 60
Free Chlorine	mg/L as Cl_2	Colorimetric	9.20 #	0.6 - 1.0
Nitrate	mg/L as NO_3^-	Brucine, Colorimetric	4.2 #	≤ 50
Ammonia	mg/L as NH_3	Titrimetric	< 0.10 #	< 20
Calcium Hardness	mg/L as $CaCO_3$	APHA, AWWA & WEF, 24th ed., 2023, part 2340 C	84 #	250 - 600
Total Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	< 1.1 #	< 10
Fecal Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 E	ตรวจไม่พบ #	ตรวจไม่พบ
Escherichia coli	MPN/100 mL	Other *Escherichia coli* Procedures	ตรวจไม่พบ #	ตรวจไม่พบ
Staphylococcus aureus	in 100 mL	Membrane Filter	ตรวจไม่พบ #	ตรวจไม่พบ
Pseudomonas aeruginosa	in 100 mL	Membrane Filter	ตรวจไม่พบ #	ตรวจไม่พบ
Sample Characterization	-	Observation	ใส	

Remark : * อ้างอิงคณะกรรมการสาธารณสุข ฉบับที่ 1/2550 เรื่อง การควบคุมการประกอบกิจการสระว่ายน้ำ หรือกิจการอื่นๆ ในทำนองเดียวกัน

-: End Of Report :-

Laboratory Staff
(Miss. Khaetthariya Mekaeo)
Chemist

Approved By
(Mrs. Neeramol Phadungsong)
General Manager

The results relate only to the items tested. Test report shall not be reproduced except in full, without written approval of the laboratory

บริษัท ศูนย์วิเคราะห์น้ำ จำกัด
WATER ANALYSIS CENTER COMPANY LIMITED
1/94 หมู่ 5 ต. คานหาม อ. อุทัย จ. พระนครศรีอยุธยา 13210
1/94 Moo 5, T.Kanham, A.U-Thai, Ayutthaya 13210, Thailand
Tel : 035-226-383 , 035-800-593 Fax : 035-800-594

TESTING
No.0029

ANALYSIS REPORT

Customer Name	:บริษัท พรีเสิร์ช จำกัด				
Address	:30 ซอยปุณณวิถี 24 แขวงบางจาก เขตพระโขนง กรุงเทพมหานคร 10260				
Contact	:คุณเบ็ญจพร อินทรเพชร (แพท)	**Phone**	:080-102-2495	**E.mail**	:b.intorpetch@gmail.com
Samply Type	: Water	**Sample Site#**	: โครงการ อัพเพอร์ สวีท	**Sampling Method#**	: Grab
Sampling Date#	: 25/08/2025	**Sampling By#**	: WAC	**Receive Date**	: 25/08/2025
Analysis Date	: 25/08/2025-02/09/2025	**Report Date**	: 02/09/2025	**Report No.**	: RWS 02535/68

Parameter	Unit	Method	PWS 05046/68 สระว่ายน้ำ	Standard *
Alkalinity	mg/L as $CaCO_3$	Titration	< 1 #	80 - 100
Combined Chlorine	mg/L as Cl_2	Calculation	1.28 #	0.5 - 1.0
Cyanuric acid	mg/L	Photometric	16 #	30 - 60
Free Chlorine	mg/L as Cl_2	Colorimetric	9.40 #	0.6 - 1.0
Nitrate	mg/L as NO_3^-	Brucine, Colorimetric	4.1 #	≤ 50
Ammonia	mg/L as NH_3	Titrimetric	< 0.10 #	< 20
Calcium Hardness	mg/L as $CaCO_3$	APHA, AWWA & WEF, 24th ed., 2023, part 2340 C	90 #	250 - 600
Total Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	< 1.1 #	< 10
Fecal Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 E	ตรวจไม่พบ #	ตรวจไม่พบ
Escherichia coli	MPN/100 mL	Other *Escherichia coli* Procedures	ตรวจไม่พบ #	ตรวจไม่พบ
Staphylococcus aureus	in 100 mL	Membrane Filter	ตรวจไม่พบ #	ตรวจไม่พบ
Pseudomonas aeruginosa	in 100 mL	Membrane Filter	ตรวจไม่พบ #	ตรวจไม่พบ
Sample Characterization	-	Observation	ใส	

Remark : * อ้างอิงคณะกรรมการสาธารณสุข ฉบับที่ 1/2550 เรื่อง การควบคุมการประกอบกิจการสระว่ายน้ำ หรือกิจการอื่นๆ ในทำนองเดียวกัน

-: End Of Report :-

Laboratory Staff
(Miss. Khaetthariya Mekaeo)
Chemist

Approved By
(Mrs. Neeramol Phadungsong)
General Manager

The results relate only to the items tested. Test report shall not be reproduced except in full, without written approval of the laboratory

บริษัท ศูนย์วิเคราะห์น้ำ จำกัด
WATER ANALYSIS CENTER COMPANY LIMITED
1/94 หมู่ 5 ต. คานหาม อ. อุทัย จ. พระนครศรีอยุธยา 13210
1/94 Moo 5, T.Kanham, A.U-Thai, Ayutthaya 13210, Thailand
Tel : 035-226-383 , 035-800-593 Fax : 035-800-594

TESTING
No.0029

ANALYSIS REPORT

Customer Name	:บริษัท พรีเสิร์ช จำกัด				
Address	:30 ซอยปุณณวิถี 24 แขวงบางจาก เขตพระโขนง กรุงเทพมหานคร 10260				
Contact	:คุณเบ็ญจพร อินทรเพชร (แพท)	**Phone**	:080-102-2495	**E.mail**	:b.intorpetch@gmail.com
Samply Type	: Water	**Sample Site#**	: โครงการ อัพเพอร์ สวีท	**Sampling Method#**	: Grab
Sampling Date#	: 16/09/2025	**Sampling By#**	: WAC	**Receive Date**	: 16/09/2025
Analysis Date	: 16-24/09/2025	**Report Date**	: 24/09/2025	**Report No.**	: RWS 02822/68

Parameter	Unit	Method	PWS 05588/68 สระว่ายน้ำ	Standard *
Alkalinity	mg/L as $CaCO_3$	APHA, AWWA & WEF, 24th ed., 2023, part 2320 B	4 #	80 - 100
Combined Chlorine	mg/L as Cl_2	Calculation	0.90 #	0.5 - 1.0
Cyanuric acid	mg/L	Photometric	47 #	30 - 60
Free Chlorine	mg/L as Cl_2	APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl G	8.20 #	0.6 - 1.0
Nitrate	mg/L as NO_3^-	Brucine, Colorimetric	4.5 #	≤ 50
Ammonia	mg/L as NH_3	Titrimetric	< 0.10 #	< 20
Calcium Hardness	mg/L as $CaCO_3$	APHA, AWWA & WEF, 24th ed., 2023, part 2340 C	76 #	250 - 600
Total Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	< 1.1 #	< 10
Fecal Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 E	ตรวจไม่พบ #	ตรวจไม่พบ
Escherichia coli	MPN/100 mL	Other *Escherichia coli* Procedures	ตรวจไม่พบ #	ตรวจไม่พบ
Staphylococcus aureus	in 100 mL	Membrane Filter	ตรวจไม่พบ #	ตรวจไม่พบ
Pseudomonas aeruginosa	in 100 mL	Membrane Filter	ตรวจไม่พบ #	ตรวจไม่พบ
Sample Characterization	-	Observation	ใส	

Remark : * อ้างอิงคณะกรรมการสาธารณสุข ฉบับที่ 1/2550 เรื่อง การควบคุมการประกอบกิจการสระว่ายน้ำ หรือกิจการอื่นๆ ในทำนองเดียวกัน

-: End Of Report :-

Laboratory Staff .....
(Miss. Khaetthariya Mekaeo)
Chemist

Approved By .....
(Mrs. Neeramol Phadungsong)
General Manager

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บริษัท ศูนย์วิเคราะห์น้ำ จำกัด
WATER ANALYSIS CENTER COMPANY LIMITED
1/94 หมู่ 5 ต. คานหาม อ. อุทัย จ. พระนครศรีอยุธยา 13210
1/94 Moo 5, T.Kanham, A.U-Thai, Ayutthaya 13210, Thailand
Tel: 0-35226-383, 0-35800-593 Fax: 0-35800-594

ANALYSIS REPORT

Customer Name :บริษัท พรีเสิร์ช จำกัด
Address :30 ซอยปุณณวิถี 24 แขวงบางจาก เขตพระโขนง กรุงเทพมหานคร 10260
Contact :คุณเบิญจพร อินทรเพชร (แพท) **Phone** :080-102-2495 **E.mail** :b.intorpetch@gmail.com
Samply Type : Water **Sample Site** : โครงการ อัพเพอร์ สวีท **Sampling Method** : Grab
Sampling Date : 28/10/2025 **Sampling By** : WAC **Receive Date** : 28/10/2025
Analysis Date : 28/10/2025-05/11/2025 **Report Date** : 05/11/2025 **Report No.** : RWS 03280/68

Parameter	Unit	Method	PWS 06538/68 สระว่ายน้ำ	Standard *
Alkalinity	mg/L as $CaCO_3$	APHA, AWWA & WEF, 24th ed., 2023, part 2320 B	40	80 - 100
Combined Chlorine	mg/L as Cl_2	Calculation	0.03	0.5 - 1.0
Cyanuric acid	mg/L	Photometric	44	30 - 60
Free Chlorine	mg/L as Cl_2	APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl G	0.09	0.6 - 1.0
Nitrate	mg/L as NO_3^-	Brucine, Colorimetric	2.8	≤ 50
Ammonia	mg/L as NH_3	APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH_3 C	< 0.10	< 20
Calcium Hardness	mg/L as $CaCO_3$	APHA, AWWA & WEF, 24th ed., 2023, part 3500-Ca B	80	250 - 600
Total Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	< 1.1	< 10
Fecal Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 E	ตรวจไม่พบ	ตรวจไม่พบ
Escherichia coli	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 G	ตรวจไม่พบ	ตรวจไม่พบ
Staphylococcus aureus	in 100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9213 B	ตรวจไม่พบ	ตรวจไม่พบ
Pseudomonas aeruginosa	in 100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9213 E	ตรวจไม่พบ	ตรวจไม่พบ
Sample Characterization	-	Observation	ใส	

Remark : * อ้างอิงคณะกรรมการสาธารณสุข ฉบับที่ 1/2550 เรื่อง การควบคุมการประกอบกิจการสระว่ายน้ำ หรือกิจการอื่นๆ ในทำนองเดียวกัน

-: End Of Report :-

Laboratory Staff
(Miss. Ronnakorn Padungwieng)
Chemist

Approved By
(Mrs. Neeramol Phadungsong)
General Manager

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บริษัท ศูนย์วิเคราะห์น้ำ จำกัด
WATER ANALYSIS CENTER COMPANY LIMITED
1/94 หมู่ 5 ต. คานหาม อ. อุทัย จ. พระนครศรีอยุธยา 13210
1/94 Moo 5, T.Kanham, A.U-Thai, Ayutthaya 13210, Thailand
Tel: 0-35226-383, 0-35800-593 Fax: 0-35800-594

ANALYSIS REPORT

Customer Name :บริษัท พรีเสิร์ช จำกัด
Address :30 ซอยปุณณวิถี 24 แขวงบางจาก เขตพระโขนง กรุงเทพมหานคร 10260
Contact :คุณเบิญจพร อินทรเพชร (แพท) **Phone** :080-102-2495 **E.mail** :b.intorpetch@gmail.com
Samply Type : Water **Sample Site** : โครงการ อัพเพอร์ สวีท **Sampling Method** : Grab
Sampling Date : 25/11/2025 **Sampling By** : WAC **Receive Date** : 25/11/2025
Analysis Date : 25/11/2025-03/12/2025 **Report Date** : 03/12/2025 **Report No.** : RWS 03554/68

Parameter	Unit	Method	PWS 07078/68 สระว่ายน้ำ	Standard *
Alkalinity	mg/L as $CaCO_3$	APHA, AWWA & WEF, 24th ed., 2023, part 2320 B	22	80 - 100
Combined Chlorine	mg/L as Cl_2	Calculation	0.34	0.5 - 1.0
Cyanuric acid	mg/L	Photometric	143	30 - 60
Free Chlorine	mg/L as Cl_2	APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl G	2.24	0.6 - 1.0
Nitrate	mg/L as NO_3^-	Brucine, Colorimetric	3.0	≤ 50
Ammonia	mg/L as NH_3	APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH_3 C	< 0.10	< 20
Calcium Hardness	mg/L as $CaCO_3$	APHA, AWWA & WEF, 24th ed., 2023, part 3500-Ca B	88	250 - 600
Total Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	< 1.1	< 10
Fecal Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 E	ตรวจไม่พบ	ตรวจไม่พบ
Escherichia coli	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 G	ตรวจไม่พบ	ตรวจไม่พบ
Staphylococcus aureus	in 100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9213 B	ตรวจไม่พบ	ตรวจไม่พบ
Pseudomonas aeruginosa	in 100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9213 E	ตรวจไม่พบ	ตรวจไม่พบ
Sample Characterization	-	Observation	ใส	

Remark : * อ้างอิงคณะกรรมการสาธารณสุข ฉบับที่ 1/2550 เรื่อง การควบคุมการประกอบกิจการสระว่ายน้ำ หรือกิจการอื่นๆ ในทำนองเดียวกัน

-: End Of Report :-

Laboratory Staff
(Miss. Khaetthariya Mekaeo)
Chemist

Approved By
(Mrs. Neeramol Phadungsong)
General Manager

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บริษัท ศูนย์วิเคราะห์น้ำ จำกัด
WATER ANALYSIS CENTER COMPANY LIMITED
1/94 หมู่ 5 ต. คานหาม อ. อุทัย จ. พระนครศรีอยุธยา 13210
1/94 Moo 5, T.Kanham, A.U-Thai, Ayutthaya 13210, Thailand
Tel: 0-35226-383, 0-35800-593 Fax: 0-35800-594

ANALYSIS REPORT

Customer Name	:บริษัท พรีเสิร์ช จำกัด				
Address	:30 ซอยปุณณวิถี 24 แขวงบางจาก เขตพระโขนง กรุงเทพมหานคร 10260				
Contact	:คุณเบิญจพร อินทรเพชร (แพท)	**Phone**	:080-102-2495	**E.mail**	:b.intorpetch@gmail.com
Samply Type	: Water	**Sample Site**	: โครงการ อัพเพอร์ สวีท	**Sampling Method**	: Grab
Sampling Date	: 25/12/2025	**Sampling By**	: WAC	**Receive Date**	: 25/12/2025
Analysis Date	: 25/12/2025-06/01/2026	**Report Date**	: 06/01/2026	**Report No.**	: RWS 03944/68

Parameter	Unit	Method	PWS 07773/68 สระว่ายน้ำ	Standard *
Alkalinity	mg/L as $CaCO_3$	APHA, AWWA & WEF, 24th ed., 2023, part 2320 B	66	80 - 100
Combined Chlorine	mg/L as Cl_2	Calculation	0.50	0.5 - 1.0
Cyanuric acid	mg/L	Photometric	159	30 - 60
Free Chlorine	mg/L as Cl_2	APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl G	6.80	0.6 - 1.0
Nitrate	mg/L as NO_3^-	Brucine, Colorimetric	5.6	≤ 50
Ammonia	mg/L as NH_3	APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH_3 C	< 0.10	< 20
Calcium Hardness	mg/L as $CaCO_3$	APHA, AWWA & WEF, 24th ed., 2023, part 3500-Ca B	92	250 - 600
Total Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 B	< 1.1	< 10
Fecal Coliform Bacteria	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 E	ตรวจไม่พบ	ตรวจไม่พบ
Escherichia coli	MPN/100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9221 G	ตรวจไม่พบ	ตรวจไม่พบ
Staphylococcus aureus	in 100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9213 B	ตรวจไม่พบ	ตรวจไม่พบ
Pseudomonas aeruginosa	in 100 mL	APHA, AWWA & WEF, 24th ed., 2023, part 9213 E	ตรวจไม่พบ	ตรวจไม่พบ
Sample Characterization	-	Observation	ใส	

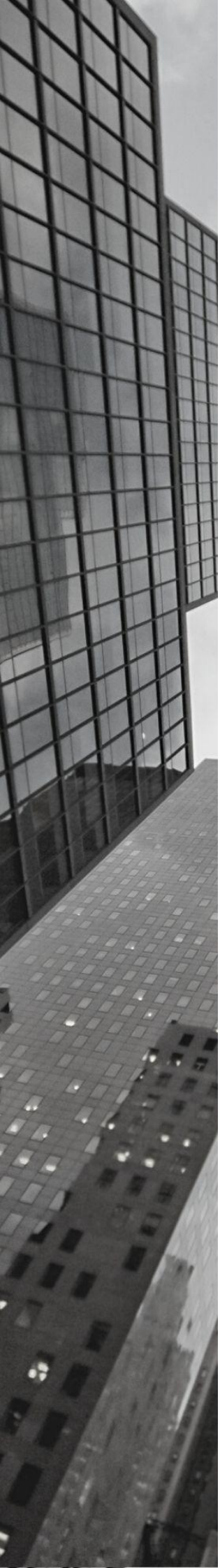
Remark : * อ้างอิงคณะกรรมการสาธารณสุข ฉบับที่ 1/2550 เรื่อง การควบคุมการประกอบกิจการสระว่ายน้ำ หรือกิจการอื่นๆ ในทำนองเดียวกัน

-: End Of Report :-

Laboratory Staff
(Miss. Khaetthariya Mekaeo)
Chemist

Approved By
(Mrs. Neeramol Phadungsong)
General Manager

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APPENDIX-4

เอกสารสอบเทียบเครื่องมือการตรวจวิเคราะห์คุณภาพน้ำทิ้ง

Ref No. : 0303/7060

CERTIFICATE OF TESTING LABORATORY ACCREDITATION

This is to certify that

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

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

Accreditation Number TESTING - 0029

The scope of accreditation is as annexed hereto

Issue date : *16th May 2024*
Expired date : *6th November 2026*
Signature :

(Mrs. Chantarat Vorasapavit)
Director of Bureau of Laboratory Accreditation

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

Scope of Testing Laboratory Accreditation

Laboratory Name : Laboratory of Water Analysis Center Co., Ltd.
Address : 1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210
Accreditation Number : Testing - 0029
Laboratory Status : ☑ Permanent ☐ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1	Bottled drinking water	- Chloride 6 mg/L to 1 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl^- B
		- Total hardness (Calculated as $CaCo_3$) 5 mg/L to 2 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2340 C
		- Total solids dried from 103 °C to 105 °C 25 mg/L to 4 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 B

Initial Issue Date 23rd September 2008 Issue Number 14

Scope of Testing Laboratory Accreditation

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

Address : 1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210

Accreditation Number : Testing - 0029

Laboratory Status : ☑ Permanent ☐ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
1 (cont.)	Bottled drinking water	- Manganese 0.05 mg/L to 5 mg/L - Iron 0.10 mg/L to 5 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 3111 B, 3030 E
		- Cadmium 1 µg/L to 5 µg/L - Lead 10 µg/L to 50 µg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 3113 B, 3030 E
		- pH 6.0 to 8.0	In - house method : TM 001 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-H^+ B

Reference No. : 0303/7060

Scope of Testing Laboratory Accreditation

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

Address : 1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210

Accreditation Number : Testing - 0029

Laboratory Status : ☑ Permanent ☐ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
2	Water	- pH 6.0 to 10.0	In - house method : TM 001 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-H^+ B
		- Total suspended solids dried from 103 °C to 105 °C 10 mg/L to 1 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 D
		- Total dissolved solids dried at 180 °C 25 mg/L to 4 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 C

Scope of Testing Laboratory Accreditation

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

Address : 1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210

Accreditation Number : Testing - 0029

Laboratory Status : ☑ Permanent ☐ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
2 (cont.)	Water	- Cadmium 0.02 mg/L to 0.9 mg/L - Copper 0.05 mg/L to 5 mg/L - Zinc 0.05 mg/L to 5 mg/L - Chromium 0.05 mg/L to 5 mg/L - Nickel 0.10 mg/L to 4 mg/L - Manganese 0.05 mg/L to 5 mg/L - Lead 0.10 mg/L to 2 mg/L - Iron 0.10 mg/L to 5 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 3111 B, 3030 E

Reference No. : 0303/7060

Scope of Testing Laboratory Accreditation

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

Address : 1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210

Accreditation Number : Testing - 0029

Laboratory Status : ☑ Permanent ☐ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
2 (cont.)	Water	- Water soluble silica (Calculated as SiO_2) 1.1 mg/L to 26 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-SiO_2 C
		- Chloride 6 mg/L to 1 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-Cl^- B
		- Total hardness (Calculated as $CaCO_3$) 5 mg/L to 2 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2340 C

Scope of Testing Laboratory Accreditation

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

Address : 1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210

Accreditation Number : Testing - 0029

Laboratory Status : ☑ Permanent ☐ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
2 (cont.)	Water	- BOD 2 mg/L to 500 mg/L	In - house method : TM 041 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500-O G
		- BOD 2 mg/L to 500 mg/L	In - house method : TM 013 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500-O C
		- COD 40 mg/L to 200 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5220 C

Initial Issue Date 23rd September 2008 Issue Number 14

Reference No. : 0303/7060

Scope of Testing Laboratory Accreditation

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

Address : 1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210

Accreditation Number : Testing - 0029

Laboratory Status : ☑ Permanent ☐ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
2 (cont.)	Water	- Total kjeldahl nitrogen 5 mg/L to 200 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH_3 C, part 4500-N_{org} B
		- Oil and grease 2 mg/L to 100 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5520 D
		- Total solids dried from 103 °C to 105 °C 25 mg/L to 4 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 B

Initial Issue Date 23rd September 2008 Issue Number 14

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

Scope of Testing Laboratory Accreditation

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

Address : 1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210

Accreditation Number : Testing - 0029

Laboratory Status : ☑ Permanent ☐ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
2 (cont.)	Water	- Selenium 5 µg/L to 50 µg/L - Arsenic 5 µg/L to 50 µg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 3114 C
		- Barium 0.50 mg/L to 5 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 3111 D, 3030 E
		- Cadmium 1 µg/L to 5 µg/L - Lead 10 µg/L to 50 µg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 3113 B, 3030 E

Reference No. : 0303/7060

Scope of Testing Laboratory Accreditation

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

Address : 1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210

Accreditation Number : Testing - 0029

Laboratory Status : ☑ Permanent ☐ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
3	Wastewater	- pH 4.0 to 10.0	In - house method : TM 001 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-H^+ B
		- Total suspended solids dried from 103 °C to 105 °C 10 mg/L to 1 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 D
		- Total dissolved solids dried at 180 °C 50 mg/L to 4 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 C

Initial Issue Date 23rd September 2008 Issue Number 14

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

Scope of Testing Laboratory Accreditation

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

Address : 1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210

Accreditation Number : Testing - 0029

Laboratory Status : ☑ Permanent ☐ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
3 (cont.)	Wastewater	- Cadmium 0.02 mg/L to 0.9 mg/L - Copper 0.05 mg/L to 5 mg/L - Zinc 0.05 mg/L to 5 mg/L - Chromium 0.05 mg/L to 5 mg/L - Nickel 0.10 mg/L to 4 mg/L - Manganese 0.05 mg/L to 5 mg/L - Lead 0.10 mg/L to 2 mg/L - Iron 0.10 mg/L to 5 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 3111 B, 3030 E

Reference No. : 0303/7060

Scope of Testing Laboratory Accreditation

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

Address : 1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210

Accreditation Number : Testing - 0029

Laboratory Status : ☑ Permanent ☐ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
3 (cont.)	Wastewater	- Total hardness (Calculated as $CaCO_3$) 5 mg/L to 2 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2340 C
		- BOD 4 mg/L to 7 000 mg/L	In - house method : TM 041 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500–O G
		- BOD 4 mg/L to 7 000 mg/L	In - house method : TM 013 based on Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5210 B, part 4500-O C

Scope of Testing Laboratory Accreditation

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

Address : 1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210

Accreditation Number : Testing - 0029

Laboratory Status : ☑ Permanent ☐ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
3 (cont.)	Wastewater	- COD 40 mg/L to 3 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5220 C
		- Total kjeldahl nitrogen 5 mg/L to 200 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 4500-NH_3 C, 4500-N_{org} B
		- Oil and grease 2 mg/L to 1 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 5520 D

Reference No. : 0303/7060

Scope of Testing Laboratory Accreditation

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

Address : 1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210

Accreditation Number : Testing - 0029

Laboratory Status : ☑ Permanent ☐ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
3 (cont.)	Wastewater	- Total solids dried from 103 °C to 105 °C 25 mg/L to 4 000 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 2540 B
		- Selenium 5 µg/L to 50 µg/L - Arsenic 5 µg/L to 50 µg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 3114 C
		- Barium 0.50 mg/L to 5 mg/L	Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023, part 3111 D, 3030 E

Reference No. : 0303/7060

Scope of Testing Laboratory Accreditation

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

Address : 1/94 Moo 5, Tambon Kanharm, Amphoe U-Thai,
Changwat Phra Nakhon Si Ayutthaya 13210

Accreditation Number : Testing - 0029

Laboratory Status : ☐ Permanent ☑ Site ☐ Temporary ☐ Mobile

Item Number	Test Material / Product	Test Item / Range of Testing	Test Method / Technique Used
4	Environmental noise	- Sound level Equivalent sound level $L_{eq,T}$ 30 dB (A) to 120 dB (A) Maximum sound level L_{max} 30 dB (A) to 120 dB (A)	In - house method : TM 201 based on ISO 1996-2 : 2017
5	Workplace noise	- Sound level Equivalent sound level $L_{eq,T}$ 30 dB (A) to 120 dB (A) Maximum sound level L_{max} 30 dB (A) to 120 dB (A)	In - house method : TM 208 based on ISO 11202 : 2010

Issue Date : 16th May 2024

Signature :

(Mrs. Chantarat Vorasapavit)

Director of Bureau of Laboratory Accreditation

Initial Issue Date 23rd September 2008 Issue Number 14

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

THC Calibration Services
THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507

ilac-MRA ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

CERTIFICATE OF CALIBRATION

Certificate No.: C0-0708009/25 **Page** 1 **of total** 4 **pages**

Customer WATER ANALYSIS CENTER CO., LTD.
1/94 Moo 5, T.Kanham,
A.U-thai, Ayutthaya 13210

Equipment pH Meter
Manufacturer METTLER TOLEDO **Model** SevenCompact S220
Serial No. B327527211 **ID No.** WWL 0068
Description Range : 0 - 14 pH, Resolution : 0.01 pH

Environmental Conditions Ambient Temperature: (20 ± 2) °C
Relative Humidity: (50 ± 10) %
Atmospheric Pressure: -

Calibration Location Jayhawks Laboratory (CL&GL)
Received Date 7 August 2025
Calibration Date 14 August 2025
Date of Issue 14 August 2025
Condition of Artifacts Used conditions but can be calibrated

Checked by

Act as Technical Manager

( ) (Krisyosl K.) ( ) (Sakda Y.)
( ) (Patiphan K.) (√) (Onnapa P.)
( ) (Pongsak H.) ( ) (Nitiphong K.)
( ) (Kanung C.) ( ) (Nonthachai K.)
( ) (Pramong P.) ( ) (Noppol P.)

Approved by

Managing Director

(Dr. Ekachai Puttitwong)

This calibration certificate shall not be reproduced other than in full except with the prior written approval of the Thai Heart Calibration Co., Ltd.

Certificate No.: C0-0708009/25 **Page** 2 **of total** 4 **pages**

Reference Method:

- The calibration method used was CP-178 based on an in-house method.
- This certificate can be traceable to the national standards, which is realized the shown measurement units according to the International System of Units (SI Units).

Reference Standard:

Type	pH Value	Lot No.	Due Date	Traceability
pH Standard Solution	4.01	300824	Jan. 22, 2026	NIMT
	7.00	230524	Jan. 14, 2026	
	10.01	030924	Jan. 14, 2026	

Type	Serial No.	Certificate No.	Due Date	Traceability
Documenting Process Calibrator	2630521	I0-2412003/24	Dec. 23, 2025	THC
Digital Thermometer with Sensor	1709138 / 4605984-005	I0-0906001/25	Jun. 8, 2026	

Remark: This certificate is traceable to the International System of Unit (SI Unit) through:

- NIMT, National Institute of Metrology (Thailand).
- THC, Thai Heart Calibration Co., Ltd.

Measurement Results:

1. Function Simulated pH Meter

Standard Applied	Nominal Value	UUC Reading		Uncertainty
(mV)	(pH)	pH	mV	(± mV)
177.48	4.00	4.01	177.3	0.060
0.00	7.00	7.00	-0.1	0.060
-177.48	10.00	10.01	-177.4	0.060

UUC : Unit Under Calibration

Note : Adjust Curve to simulate pH (4,7,10)

Calibrated by Athipat

Certificate No.: C0-0708009/25 **Page** 3 **of total** 4 **pages**

Measurement Results (Cont.):

2. Calibration of pH Electrode (Serial No.: 3222623)

pH Standard Solution	Measured Value		Uncertainty
(pH)	(pH)	(mV)	(± pH)
4.01	4.03	152.6	0.013
7.00	7.00	-20.1	0.013
10.01	10.03	-184.7	0.013

Note : Adjust Curve to Buffer Solution pH (4,7,10)

Temperature stability of micro bath : 25 ± 0.2°C

The above reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

ใช้สำหรับงานจัดจ้างตรวจวัดคุณภาพน้ำเสีย น้ำประปา น้ำบาดาล น้ำผิวดิน (น้ำทะเล) และคุณภาพน้ำ Cooling กับ โรงพยาบาลสมเด็จพระบรมราชเทวี ณ ตรัง

Calibrated by Athipat

THC Calibration Services
THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507
ilac-MRA ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

Reference Method:

- The calibration method used was CP-096 based on an in-house method.
- The temperature scale used was an ITS-90.
- This certificate can be traceable to the national standards, which is realized the shown measurement units according to the International System of Units (SI Units).

Reference Standard Instruments:

Type	Serial No.	Cert. No.	Due Date	Traceability
Thermometer Readout	B7C853	I0-2810001/24	Oct. 28, 2025	THC
Platinum Resistance Thermometer	4854	C0A30047	Oct. 22, 2025	FLUKE
Liquid Bath	XO111019	I0-2605001/25	May 28, 2027	THC

Remark: This certificate is traceable to the International System of Unit (SI Unit) through:

- THC, Thai Heart Calibration Co., Ltd.
- FLUKE, Fluke Comporation, U.S.A.

Measurement Results: (X) Without Adjustment

Dimension of probe : Diameter 3 mm. Sensor Type : RTD (PT100)

Immersion Depth (mm.)	Standard Reading (°C)	UUC Reading (°C)	Correction (°C)	Uncertainty (± °C)
120	22.00	22.2	-0.20	0.065
120	25.00	25.2	-0.20	0.065
120	28.00	28.3	-0.30	0.065

UUC : Unit Under Calibration

The above reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -

Calibrated by Pongsak

THC Calibration Services
THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507
ilac-MRA ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

CERTIFICATE OF CALIBRATION

Customer WATER ANALYSIS CENTER CO., LTD.
1/94 Moo 5, T.Kanham,
A.U-thai, Ayutthaya 13210

Equipment Conductivity Meter
Manufacturer EUTECH **Model** CON 2700
Serial No. 2657889 **ID No.** WWL 0136
Description -

Environmental Conditions Ambient Temperature: (20 ± 2) °C
Relative Humidity: (50 ± 10) %
Atmospheric Pressure: -

Calibration Location Jayhawks Laboratory (CL&GL)
Received Date 16 July 2025
Calibration Date 18 July 2025
Date of Issue 18 July 2025
Condition of Artifacts Used conditions but can be calibrated

Checked by **Approved by**

Act as Technical Manager Managing Director

( ) (Krisyosl K.) ( ) (Sakda Y.) (Dr. Ekachai Puttitwong)
( ) (Patiphan K.) (√) (Onnapa P.)
( ) (Pongsak H.) ( ) (Nitiphong K.)
( ) (Kanung C.) ( ) (Nonthachai K.)
( ) (Pramong P.) ( ) (Noppol P.)

This calibration certificate shall not be reproduced other than in full except with the prior written approval of the Thai Heart Calibration Co., Ltd.

THC Calibration Services
THAI HEART CALIBRATION CO., LTD.
112/1 Moo 5, Phraek Sa, Muang, Samut Prakan 10280
Tel. 0-2394-2162, 0-2757-8435, 0-2757-8496 Fax.: 0-2757-8507
ilac-MRA ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY AC-2695

Reference Method:

- The calibration method used was CP-177 based on an in-house method.
- This certificate can be traceable to the national standards, which is realized the shown measurement units according to the International System of Units (SI Units).

Reference Standard :

Meterial	Batch Value	Lot Number	Due Date	Traceability
Conductivity Standard Solution	151 µS/cm	S231019018	Jul. 23, 2025	SCP Science
	1.411 mS/cm	S241111016	May 23, 2026	

Remark: This certificate is traceable to the International System of Unit (SI Unit) through:
- SCP Science.

Measurement Results: (Probe Serial No. : 93X219065)

Conductivity Standard Solution	Measured Value	Correction	Uncertainty (±)
151 µS/cm	151.4 µS/cm	-0.4 µS/cm	2.5 µS/cm
1.411 mS/cm	1.411 mS/cm	0.000 mS/cm	0.0051 mS/cm

Note : Adjustment points : 151µS/cm 1.411mS/cm

The above reported uncertainty of measurement is the expanded uncertainty obtained by multiplying the standard uncertainty with the coverage factor $k = 2.00$, providing a level of confidence approximately 95%.

- End of Certificate -

Calibrated by Kittipong

IMC Inctech Metrological Center Co.Ltd.
39/1 Soi 82, Sukhapiban 5 Rd., O ngoen,
Saimai, Bangkok 10220, Thailand
Tel. (662) 909-8820 (Auto 10 lines) www.imcinstrument.com

ilac-MRA A2LA ACCREDITED Calibration Cert. # 3884.01 ISO/IEC 17025

Certificate of Calibration

Certificate No. : MT25-5945
Page : 1 of 2

Customer : Water Analysis Center Co.,Ltd.
Address : 1/94 Moo 5, Rojana Industrial Park, T.Kanham, A.U-Thai, Ayutthaya 13210

Description : Refrigerator
Manufacturer : B.T.Metrology Co.,Ltd.
Model : REF 940L
Serial No. : BT-03-09-09
Identification No. : WWL 0043
Calibration Place : Customer Laboratory

Order No. : 2503/25
Received date : Aug 01, 2025
Calibration date : Aug 01, 2025
Environment Condition :
Temperature : (25+/-10) °C
Humidity : (50+/-30) %RH

Calibration Method : Calibration were conducted using In-house calibration procedure *CP-MT-006* According to comparison with LXI Data Acquisition Switch Unit with sensor. The calibration methods based on Euramet Calibration Guide No.20 - guidelines on the Calibration of Temperature and/or Humidity Controlled Enclosures.

Reference Standard Instruments :

Instrument	Model	Serial No.	Certificate No.	Due Date
LXI Data Acquisition Switch Unit with Sensor	34972A	MY49028922	MT24-8770	Nov 22, 2025

The effect that the result relate only to the items calibrated. It was found accurate as shown on date and place of calibration only.

Traceability : This measurement are traceable to the International System of Unit (SI), through National Institute of Metrology Thailand (NIMT)

The reported expanded uncertainty of measurement was based on standard uncertainty multiplied by coverage factor $k = 2$, providing a level of confidence of not less than 95%

CALIBRATION LABORATORY IMC INCTECH METROLOGICAL CENTER CO.,LTD.

Calibrated by : Miss Jarunee Tubsay

Approved by : (Mr.Panuwat Phuklan)

Issue date : Aug 14, 2025

This calibration certificate shall not be reproduced other than in full except with the prior written approval of Inctech Metrological Center Co.,Ltd

Inctech Metrological Center Co.Ltd.
39/1 Soi 82, Sukhapiban 5 Rd., O ngoen,
Saimai, Bangkok 10220, Thailand
Tel. (662) 909-8820 (Auto 10 lines) www.imcinstrument.com

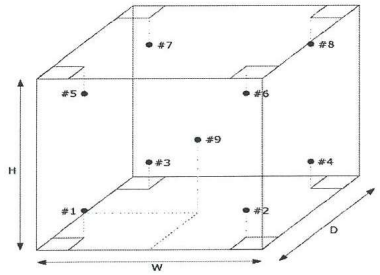
Calibration Cert. # 3884.01
ISO/IEC 17025

Function : Temperature measurement
Calibration point : 20 °C
Result : Without adjustment
Resolution : 0.1 °C

Calibration point	Temperature of UUC* at each position (°C)									Uncertainty of measurement
(°C)	Ch.1	Ch.2	Ch.3	Ch.4	Ch.5	Ch.6	Ch.7	Ch.8	Ch.9	(+/- °C)
20	19.910	19.869	20.107	20.080	20.018	19.783	20.200	20.216	19.761	0.32

Setting temperature (°C)	Indicating Temperature (°C)	Measured stability (+/- °C)	Measured uniformity (°C)	Overall variation (°C)
20.0	20.0	0.09	0.60	0.60

ใช้สำหรับงานจัดจ้างตรวจวัดคุณภาพน้ำเสีย น้ำดิบ น้ำดื่ม น้ำผิวดิน (น้ำทะเล) และคุณภาพน้ำ Cooling กับ โรงพยาบาลสมเด็จพระบรมราชเทวี ณ ศรีราชา



#1 Lower Left Front
#2 Lower Right Front
#3 Lower Left Rear
#4 Lower Right Rear
#5 Upper Left Front
#6 Upper Right Front
#7 Upper Left Rear
#8 Upper Right Rear
#9 Geometric Center

Front view

UUC* = Unit under calibration
Uniformity = Maximum and Minimum difference of measured temperature at any probes and the measured temperature at the reference and same time.
Overall Variation = Difference of temperature value between the maximum and minimum any time.
Stability = One half of the maximum difference of measured temperatures at any one probe.

-oOo-

Professional Calibration & Services Co., Ltd.
50/888, 50/889 Moo 2, Rungsit-Nakornnayok Rd., Bungyeetho, Thunyaburi,
Pathumthani 12130 Thailand
Tel : (+66)2150-6641 (Autoline)
Email : info@p-cal.com www.p-cal.com

ANSI National Accreditation Board
ACCREDITED
ISO/IEC 17025
CALIBRATION AND DIMENSIONAL MEASUREMENT
AC-2590

Certificate of Calibration

Certificate Number : PL26147/25
Control Number : PCAL165992
Customer Control : WWL 0219
Description : DO Meter
Manufacturer : YSI
Model : YSI 4010-1W
Serial Number : 22091049
Customer : Water Analysis Center Co.,Ltd
1/94 Moo 5 T.Kanham A.U-Thai Ayutthaya 13210 Thailand

Date of Receipt : 13-May-25
Date of Calibration : 13-May-25
Calibration Location : Physical Laboratory
Environment : Temperature 20 °C ± 2 °C
: Relative Humidity 50 % ± 20 %
Calibration Method : Calibration Procedure Number CP-PL93
Calibration Results : See data attached

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95%.

This certificate is issued in accordance with ISO/IEC17025 and the conditions of accreditation granted by the Accreditation Body which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standards laboratory.The results relate only to the item calibrated.

This certificate shall not be reproduced other than in full except without the prior written approval of the Head of Calibration Laboratory of Professional Calibration & Services Co., Ltd.

Calibrated By

Ms. Supattra Mungkasam

Authorized Signature

(Mr. Jumnong Junphong)

17-May-25
Issued Date

Professional Calibration & Services Co., Ltd.
50/888, 50/889 Moo 2, Rungsit-Nakornnayok Rd., Bungyeetho, Thunyaburi,
Pathumthani 12130 Thailand
Tel : (+66)2150-6641 (Autoline)
Email : info@p-cal.com www.p-cal.com

Calibration Report

Certificate Number : PL26147/25

Equipment Standards Used

Description	Serial No.	Traceability to	Certificate No.	Cal. Due Date
Platinum Resistance Thermometer	1036223	ANAB : AC-2590	EL24012/24	17-Jun-25
Zero Oxygen Solution Set	-	NIST	S0090/24	25-Sep-29
Distilled Water	-	BSG	D1500310724	11-Jul-26
Documenting Process Calibrator	9779005	ANAB : AC-2590	EL11797/25	06-Mar-26
Humidity/Barometer/Data Recorder	AL.61015	ANAB : AC-2590,NSC : Calibration 0008	EL35266/24, 24P2620	16-Jul-25

Condition as received : Normal

Definitions :-

* ANAB - The ANSI National Accreditation Board
* NIST - National Institute of Standard and Technology
* BSG - Bangkok Science Center Co., Ltd.
* NSC - National Standardization Council of Thailand

ใช้สำหรับงานจัดจ้างตรวจวัดคุณภาพน้ำเสีย น้ำประปา น้ำดื่ม น้ำผิวดิน (น้ำทะเล) และคุณภาพน้ำ Cooling กับ โรงพยาบาลสมเด็จพระบรมราชเทวี ณ ศรีราชา

Professional Calibration & Services Co., Ltd.
50/888, 50/889 Moo 2, Rungsit-Nakornnayok Rd., Bungyeetho, Thunyaburi,
Pathumthani 12130 Thailand
Tel : (+66)2150-6641 (Autoline)
Email : info@p-cal.com www.p-cal.com

Calibration Report

CertificateNo.: PL26147/25

Calibration Results

Dissolved Oxygen Calibration

Description of Meter
- Range : 0 to 50 mg/l
- Resolution : 0.01 mg/l

Description of Electrode
- Manufacturer : YSI
- Model : N/A
- Serial No. : 22A105587
- Type : Electrochemical (Membrane)

Calibration Point	Standard Value	UUC Reading	UUC Error	Uncertainty (±)
0 mg/l	0.000 mg/l	** 0.08 mg/l	0.08 mg/l	0.027 mg/l
8 mg/l	8.517 mg/l	8.45 mg/l	-0.07 mg/l	0.037 mg/l
9 mg/l	9.036 mg/l	8.96 mg/l	-0.08 mg/l	0.037 mg/l

Notes :

1). Calibration results that carry the double asterisk (**) are not accredited. Calibrations marked as such on this Certificate have been included for completeness.

...End...

ใช้สำหรับงานจัดจ้างตรวจวัดคุณภาพน้ำเสีย น้ำประปา น้ำดื่ม น้ำผิวดิน (น้ำทะเล) และคุณภาพน้ำ Cooling กับ โรงพยาบาลสมเด็จพระบรมราชเทวี ณ ศรีราชา

Inctech Metrological Center Co.Ltd.
39/1 Soi 82, Sukhapiban 5 Rd., O ngoen,
Saimai, Bangkok 10220, Thailand
Tel. (662) 909-8820 (Auto 10 lines) www.imcinstrument.com

Calibration Cert. # 3884.01
ISO/IEC 17025

Certificate of Calibration

Certificate No. : MT25-7680
Page : 1 of 2

Customer : Water Analysis Center Co.,Ltd.
Address : 1/94 M.5, Rojana Industrial Park, T.Kanham, A.U-Thai, Ayutthaya 13210

Description : Hot Air Oven
Manufacturer : Termaks
Model : TS8136
Serial No. : N/A
Identification No. : WWL0040
Calibration Place : Customer Laboratory

Order No. : 3746/25
Received date : Nov 11, 2025
Calibration date : Nov 11, 2025
Environment Condition :
Temperature : (25+/-10) °C
Humidity : (50+/-30) %RH

Calibration Method : Calibration were conducted using In-house calibration procedure *CP-MT-006* According to comparison with LXI Data Acquisition Switch Unit with sensor. The calibration methods based on Euramet Calibration Guide No.20 - guidelines on the Calibration of Temperature and/or Humidity Controlled Enclosures.

Reference Standard Instruments :

Instrument	Model	Serial No.	Certificate No.	Due Date
Data Acquisition System with Sensor	DAQ970A	MY58029872	MT25-5654	Aug 15, 2026

The effect that the result relate only to the items calibrated. It was found accurate as shown on date and place of calibration only.

Traceability : This measurement are traceable to the International System of Unit (SI), through National Institute of Metrology Thailand (NIMT)

The reported expanded uncertainty of measurement was based on standard uncertainty multiplied by coverage factor k = 2, providing a level of confidence of not less than 95%

CALIBRATION LABORATORY * INCTECH METROLOGICAL CENTER CO.,LTD.

Calibrated by : Miss Jarunee Tubsay

Approved by : [redacted]

Issue date : Nov 12, 2025

This calibration certificate shall not be reproduced other than in full except with the prior written approval of Inctech Metrological Center Co.,Ltd

Inctech Metrological Center Co.Ltd.
39/1 Soi 82, Sukhapiban 5 Rd., O ngoen,
Saimai, Bangkok 10220, Thailand
Tel. (662) 909-8820 (Auto 10 lines) www.imcinstrument.com

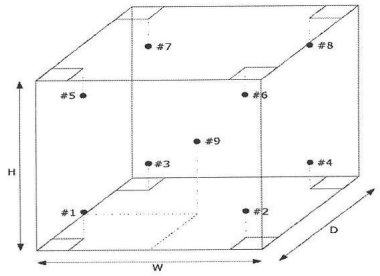
Calibration Cert. # 3884.01
ISO/IEC 17025

Function : Temperature measurement
Calibration point : 103, 104, 180 °C

Result : Without adjustment
Resolution : 0.1 °C

Calibration point (°C)	Temperature of UUC* at each position (°C)									Uncertainty of measurement
	Ch.1	Ch.2	Ch.3	Ch.4	Ch.5	Ch.6	Ch.7	Ch.8	Ch.9	(+/- °C)
103	103.394	103.086	103.292	103.370	103.021	103.002	103.430	103.048	103.320	0.56
104	103.700	104.052	104.318	103.740	104.025	103.937	104.211	104.039	104.315	0.44
180	180.264	180.029	180.271	180.338	180.115	180.110	180.101	180.186	180.055	0.44

Setting temperature (°C)	Indicating Temperature (°C)	Measured stability (+/- °C)	Measured uniformity (°C)	Overall variation (°C)
103.0	103.0	0.45	0.65	0.89
104.0	104.0	0.30	0.82	0.90
181.0	180.0	0.32	0.64	0.79



Front view

#1 Lower Left Front
#2 Lower Right Front
#3 Lower Left Rear
#4 Lower Right Rear
#5 Upper Left Front
#6 Upper Right Front
#7 Upper Left Rear
#8 Upper Right Rear
#9 Geometric Center

UUC* = Unit under calibration
Uniformity = Maximum and Minimum difference of measured temperature at any probes and the measured temperature at the reference and same time.
Overall Variation = Difference of temperature value between the maximum and minimum any time.
Stability = One half of the maximum difference of measured temperatures at any one probe.

-oOo-

DKSH

Certificate of Calibration

NSC-TISI-TIS 17025
Calibration 0087

Equipment:	Electronic Balance	Certificate No.:	C01253561
Manufacturer:	Sartorius	Job No.:	WO-00096348
Model:	BL210S	Issued Date:	02 December 2025
Serial No.:	15808131	Page:	1 of 2
ID No.:	WWL 0022		
Condition of the item:	Normal		

Customer: Water Analysis Center Co., Ltd.
1/94 Moo 5, Rojana Industrial Park, Rojana Road,
Tambol Kanham, Amphur U-Thai, Ayutthaya 13210 Thailand

Environment Condition: Temperature 25 °C ± 0.6 °C
Relative Humidity 55 % ± 0.9 %

Calibration Place: Water Analysis Center Co., Ltd. (ห้องเครื่องชั่ง)
1/94 Moo 5, Rojana Industrial Park, Rojana Road,
Tambol Kanham, Amphur U-Thai, Ayutthaya 13210 Thailand

Calibration By: Mr. Anusorn Jitborikhon

Calibration Date: 02 December 2025

The Method Used: In-house method, CAL-WI-47, based on UKAS Lab 14

Traceability: This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through DKSH Technology Co., Ltd. Certificate No. C02251333

(Mr. Anusorn Jitborikhon)
Person in charge

(Mr. Adisai Maknoi)
Authorized signatory

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with Evaluation of measurement data - Guide to the expression of uncertainty in measurement (JCGM 100).

These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of DKSH Technology Limited.

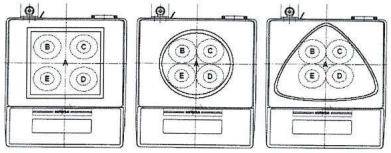
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Phone: +66 2639 7000 Email: info.calibration@dksh.com Website: www.dksh.com/scientific-thailand

DKSH

Calibration Results:

Without Adjustment

Eccentric Error: Weight to be 1/3 or 1/2 of Maximum capacity, taken from the center of the pan as a zero reference.



Nominal Test Value 100 (g)

Reference Points (g)				
A	B	C	D	E
-	0.0001	0.0001	0.0000	0.0000

Repeatability: Determination of the standard deviation of weighing balance., Readability 0.0001 (g)

Nominal test value (g)	Standard Deviation
20	0.00004
200	0.00005

Error of indication from nominal or conventional mass value., Readability 0.0001 (g)

Nominal Value (g)	Conventional Mass (g)	Displayed Value (g)	Error of indication (g)	Uncertainty (± g)	k
1	1.00001	1.0000	0.0000	0.00010	2.03
2	2.00001	2.0000	0.0000	0.00010	2.03
5	5.00002	5.0000	0.0000	0.00010	2.03
10	10.00001	10.0000	0.0000	0.00011	2.02
20	20.00001	20.0000	0.0000	0.00011	2.02
50	50.00001	50.0000	0.0000	0.00012	2.01
70	70.00002	70.0000	0.0000	0.00015	2.00
100	99.99991	100.0001	0.0002	0.00017	2.00
120	119.99992	120.0002	0.0003	0.00021	2.00
150	149.99992	150.0004	0.0005	0.00023	2.00
200	200.00002	200.0008	0.0008	0.00029	2.00

The End of Certificate

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Delivering Growth – in Asia and Beyond.
CAL-FM-C01-15: 30 Jun 2025

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80-82 Prachathipatai Rd., Bangkhunphrom, Pranakorn, Bangkok 10200
Tel. 0-2629-0191-6, 0-2280-1787, Fax. 0-2280-1788, E-mail : thawatt@thaiunique.com, Website : www.thaiunique.com

PREVENTATIVE MAINTENANCE (PM) CHECK LIST

FOR ATOMIC ABSORPTION SPECTROMETER

Model & Serial Number: AA 240FS & AA09111M073

Customer : Water Analysis Center Co.,Ltd.

Date: 7 Aug 2025

~~Safety~~

- [x] Flame, Inspect/replace o-ring nebulizer, spray chamber and burner
- [x] Flame, Clean nebulizer, spray chamber and burner
- [x] Flame, Check liquid trap interlock, burner interlock, pressure relief bung interlock and shield interlock
- [ ] Furnace, Clean work head , electrode and shroud N/A
- [ ] Furnace, Clean PSD and PSD tray N/A
- [ ] Furnace, Check water pressure N/A
- [x] Check drain tube
- [x] Check exhaust system
- [x] Check gas pressure sensor interlock
- [x] Check and all gas hoses for SpectrAA
- [x] Clean computer control

Optics

- [x] Inspect/Replace that external optics surfaces
- [x] Check Wavelength Accuracy the copper line at 323.0-326.0 nm = 324.8 nm
- [x] Check that PMT % Gain the copper at 324.8 nm,4 mA,0.5 nm slit width, Gain = 39 % ~~(should be ≤ 64% or ≤ 380V)~~
- [x] Flame, Check D2 lamp is work

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80-82 Prachathipatai Rd., Bangkhunphrom, Pranakorn, Bangkok 10200
Tel. 0-2629-0191-6, 0-2280-1787, Fax. 0-2280-1788, E-mail : thawatt@thaiunique.com, Website : www.thaiunique.com

Electronics

- [x] Check power supply voltage
- [x] Check cables and connectors
- [x] Check/Clean all boards in the instrument
- [ ] Furnace, Check camera and align** N/A

~~**Option for Graphite Zeeman only~~

Mechanisms

- [x] Flame, Check the burner adjuster
- [ ] Furnace, Check PSD accessories N/A

~~Analytical performance~~

- [x] Clear the sample compartment
- [x] Flame, Check uptake rate form 7.2-10.6 mL per minute = 9.5 mL/min
- [x] Test Photometric noise, STDV = 0.0003 Abs (should be ≤ 0.00050 Abs)
- [x] Flame, Test high solids nebulizer setting use

  -Air/acet Cu 5 ppm = 0.95 Abs, and Precision

  (%RSD)= 0.3 % (should be > 0.55Abs and < 0.5% RSD)

  or

  ~~-N20/Acet Cu 5 ppm =~~_____Abs, and ~~Precision~~

  (%RSD)=_____%(should be > 0.3Abs and < 0.5% RSD)
- [ ] Furnace, Characteristic mass and sensitivity Cu 25 ppb =_____Abs, and N/A Precision (%RSD)=_____% (should be ≥ 0.15 Abs and ≤ 4.0% RSD)

~~SIGN~~ :

Engineer : ( )

Customer : .... ..

(... ...)

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80-82 Prachathipatai Rd., Bangkhunphrom, Pranakorn, Bangkok 10200
Tel. 0-2629-0191-6, 0-2280-1787, Fax. 0-2280-1788, E-mail : thawatt@thaiunique.com, Website : www.thaiunique.com

PREVENTATIVE MAINTENANCE (PM) CHECK LIST

FOR ATOMIC ABSORPTION SPECTROMETER

Model & Serial Number: 240 FS AA & MY18230004

Customer : Water Analysis Center Co.,Ltd.

Date: 24 Apr 2025

Safety

- ☑ Flame, Inspect/replace o-ring nebulizer, spray chamber and burner
- ☑ Flame, Clean nebulizer, spray chamber and burner
- ☑ Flame, Check liquid trap interlock, burner interlock, pressure relief bung interlock and shield interlock
- ☐ Furnace, Clean work head , electrode and shroud N/A
- ☐ Furnace, Clean PSD and PSD tray N/A
- ☐ Furnace, Check water pressure N/A
- ☑ Check drain tube
- ☑ Check exhaust system
- ☑ Check gas pressure sensor interlock
- ☑ Check and all gas hoses for SpectrAA
- ☐ Clean computer control

Optics

- ☑ Inspect/Replace that external optics surfaces
- ☑ Check Wavelength Accuracy the copper line at 323.0-326.0 nm = 324.6 nm
- ☑ Check that PMT % Gain the copper at 324.8 nm,4 mA,0.5 nm slit width, Gain =39% (should be ≤ 64% or ≤ 380V)
- ☑ Flame, Check D2 lamp is work

บริษัท ไทยยูนีค จำกัด THAI UNIQUE CO., LTD.
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Tel. 0-2629-0191-6, 0-2280-1787, Fax. 0-2280-1788, E-mail : thawatt@thaiunique.com, Website : www.thaiunique.com

Electronics

- ☑ Check power supply voltage
- ☑ Check cables and connectors
- ☑ Check/Clean all boards in the instrument
- ☐ Furnace, Check camera and align** N/A

**Option for Graphite Zeeman only

Mechanisms

- ☑ Flame, Check the burner adjuster
- ☐ Furnace, Check PSD accessories N/A

Analytical performance

- ☑ Clear the sample compartment
- ☑ Flame, Check uptake rate form 7.2-10.6 mL per minute = 9.5 mL/min
- ☑ Test Photometric noise, STDV = 0.0001 Abs (should be ≤ 0.00050 Abs)
- ☑ Flame, Test high solids nebulizer setting use

  -Air/acet Cu 5 ppm = 0.89 Abs, and Precision

  (%RSD)= 0.3 % (should be > 0.55Abs and < 0.5% RSD)

  or

  -N20/Acet Cu 5 ppm = _____ Abs, and Precision

  (%RSD)= _____ %(should be > 0.3Abs and < 0.5% RSD)
- ☐ Furnace, Characteristic mass and sensitivity Cu 25 ppb = _____ Abs, and N/A

  Precision (%RSD)= _____ % (should be ≥ 0.15 Abs and ≤ 4.0% RSD)

SIGN :

Engineer :

Customer : ....

(.....)

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80-82 Prachathipatai Rd., Bangkhunphrom, Pranakorn, Bangkok 10200
Tel. 0-2629-0191-6, 0-2280-1787, Fax. 0-2280-1788, E-mail : thawatt@thaiunique.com, Website : www.thaiunique.com

PREVENTATIVE MAINTENANCE (PM) CHECK LIST

FOR ATOMIC ABSORPTION SPECTROMETER

Model & Serial Number: 2407 & MY18230904

Customer : Water Analysis Center Co., Ltd.

Date: 25 Apr 2025

Safety

- ☐ Flame, Inspect/replace o-ring nebulizer, spray chamber and burner N/A
- ☐ Flame, Clean nebulizer, spray chamber and burner N/A
- ☐ Flame, Check liquid trap interlock, burner interlock, pressure relief bung N/A interlock and shield interlock
- ☑ Furnace, Clean work head , electrode and shroud
- ☑ Furnace, Clean PSD and PSD tray
- ☑ Furnace, Check water pressure
- ☑ Check drain tube
- ☑ Check exhaust system
- ☑ Check gas pressure sensor interlock
- ☑ Check and all gas hoses for SpectrAA
- ☑ Clean computer control

Optics

- ☑ Inspect/Replace that external optics surfaces
- ☑ Check Wavelength Accuracy the copper line at 323.0-326.0 nm = 324.7 nm
- ☑ Check that PMT % Gain the copper at 324.8 nm,4 mA,0.5 nm slit width, Gain =53% (should be ≤ 64% or ≤ 380V)
- ☐ Flame, Check D2 lamp is work N/A

บริษัท ไทยยูนีค จำกัด THAI UNIQUE CO., LTD.
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Tel. 0-2629-0191-6, 0-2280-1787, Fax. 0-2280-1788, E-mail : thawatt@thaiunique.com, Website : www.thaiunique.com

Electronics

- ☑ Check power supply voltage
- ☑ Check cables and connectors
- ☑ Check/Clean all boards in the instrument
- ☑ Furnace, Check camera and align**

**Option for Graphite Zeeman only

Mechanisms

- ☐ Flame, Check the burner adjuster N/A
- ☑ Furnace, Check PSD accessories

Analytical performance

- ☑ Clear the sample compartment
- ☐ Flame, Check uptake rate form 7.2-10.6 mL per minute =_____mL/min N/A
- ☑ Test Photometric noise, STDV = 0.0001 Abs (should be ≤ 0.00050 Abs)
- ☐ Flame, Test high solids nebulizer setting use N/A

-Air/acet Cu 5 ppm =_____Abs, and Precision

(%RSD)=_____% (should be > 0.55Abs and < 0.5% RSD)

or

-N20/Acet Cu 5 ppm =_____Abs, and Precision

(%RSD)=_____%(should be > 0.3Abs and < 0.5% RSD)

- ☑ Furnace, Characteristic mass and sensitivity Cu 25 ppb = 0.18 Abs, and Precision (%RSD)= 3.5 % (should be ≥ 0.15 Abs and ≤ 4.0% RSD)

SIGN :

Engineer : (.....)

Customer : .....

(.....)

CRYSTAL CALIBRATION SALES AND SERVICE CO., LTD.
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Salathammasop, Thawewatthana, Bangkok 10170 Thailand
Tel : 0-2408-8474-5 Fax : 0-2408-8477 Email : info@crystalcal.com www.crystalcal.com

CERTIFICATE OF TEST

Report No. : 25-1325-001

Issue Date : 17 October 2025 Work Order No. : 25/1325

Customer Name : Water Analysis Center Co.,Ltd
1/94 Moo 5, T.Kantham, A.U-Thai,
Ayutthaya 13210

Date of Received : 16 October 2025

Date of test : 16 October 2025

Instrument Details :
Description : Biological Safety Cabinet
Manufacturer : MICROTECH
Model : V6-T
Serial No. : 0972
ID No. : WWL 0084
Class / Type : Class II / A2
Location : ห้องปฏิบัติการทดสอบ

Test Method : This equipment was performance test by procedure is according to calibration procedure no. CWI-BSC-01 compliance EN 12469 : 2000 Biotechnology performance criteria for microbiological safety cabinet and AS 1807.23 : 2000 Determination of intensity of radiation from germicidal ultraviolet lamp and NSF/ANSI 49 Biosafety Cabinet : Desing, Construction, Performance, and filed certificate

Environment Conditions :
Temperature : Area Monitoring between 15°C to 40°C
Humidity : Area Monitoring between 30%RH to 85%RH
Line Voltage : Area Monitoring 220 VAC ± 10%

Traceability of Measurement :
This certificate of calibration documents the traceability to national standard, which realize the unit of measurement according to the International system of Units (SI)

Calibrated by : Mr. Kritsada Kaewwangpa
Calibration Engineer

Approved by : (Mr. Surasit Sakprasert)
Authorized Signatory

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REPORT OF TEST

Report No. : 25-1325-001

Issue Date : 17 October 2025 Work Order No. : 25/1325

Details of Reference

1. Reference Standards Instrument

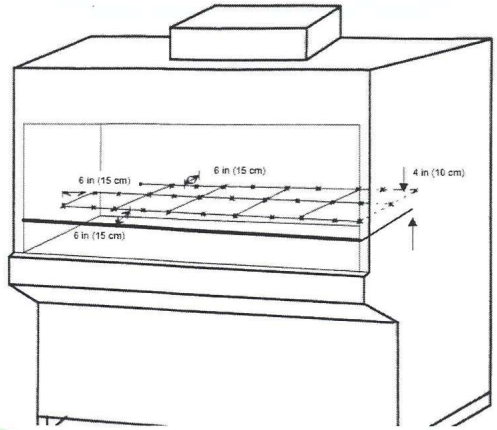
No	Instrument	Model	Serial No./Ins No.	Certificate No.	Due Date
1.1	Thermo aneometer	440	83787941	TTH-0-146567	01 October 2026
1.2	Aerosol Photometer	2I	24056	ST325/1025	01 October 2026
1.3	Lux meter	UT383S	C222495023	MTE250301-1	16 June 2026
1.4	UVC LIGHT METER	UV-370SD	Q977653	CO20250020EA	13 March 2026
1.5	Sound level meter	815	30833548/203	MTE250356-1	15 July 2026

2. Certificate traceable : This certificate traceable to The International System of Unit refer to
1.1 Techmaster asia (Thailand) Co., Ltd., ANAB AC-1736.08
1.2 Particle Measurig Technique Co., Ltd.
1.3 Ming Deng Metrology Services (Thailand) Co., Ltd., ANAB ACT-2515
1.4 Electrical and Electronics institute.
1.5 Ming Deng Metrology Services (Thailand) Co., Ltd., ANAB ACT-2515

3. Condition of item : Normal

Part 1 Velocity test performane

1. Downflow velocity test



Downflow velocity diagrams of measurement

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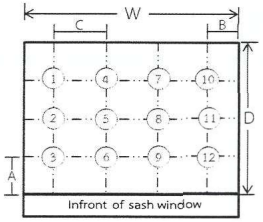
REPORT OF TEST

Report No. : 25-1325-001

Issue Date : 17 October 2025 Work Order No. : 25/1325

1. Downflow velocity test (continued)

Turn the MSC on. With the anemometer inside the MSC, make air velocity measurement in the horizontal plane 50mm to 100mm above the top edge of the front aperture, Make measurement over a period at least 1min in each position for at least eight positions, namely four along a line 1/4 of the depth of working space forward of the rear wall and four along a line same distance behind the front window. Ensure that the measurement are spaced along these lines at 1/8 and 3/8 of the width of working space from both the left-hand and right-hand sides.(Refer to EN 12469:2000 , G.3.2 page 36)



when ; size of cabinet
W = width is 1.8 m
D = depth is 0.65 m

Air velocity measurement (m/s)					
No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
0.33	0.33	0.34	0.37	0.33	0.33
No. 7	No. 8	No. 9	No. 10	No. 11	No. 12
0.34	0.35	0.34	0.36	0.36	0.33

A = distance from frot 162.5 mm B = distance from wall 225 mm C = distance of measurement 450 mm

Acceptance criteria follow up to EN 12469 : 2000 (Table H.1)

Mean Downflow velocity (m/s)	Minimum Downflow velocity (m/s)	Maximum Downflow velocity (m/s)	± 20% of Mean Downflow velocity (m/s)
0.34	0.33	0.37	0.27 to 0.41

*Mean downflow velocity to achieve product protion in method EN12469 specific range 0.25 m/s to 0.50 m/s

Measurement of test result inspection of EN 12469 : PASS

2. Inflow velocity test

Laboratory used alternative method measured by thermo anemometer is opening sash window screen 3 inches (76mm) and installation thermo anemometer from the top window 1.5 inches (38mm) and moved thermo anemometer coverage area in horizontal measured inflow velocity point to point distantce 4 inces (100mm), Inflow velocity in report is correct value by correction factor for 8" window (estimate and / or refer to factory factor)

Positon of measured inflow velocity (m/s)																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.23	1.14	1.15	1.21	1.11	1.15	1.15	1.19	1.16	1.19	1.15	1.17	1.18	1.14	1.21	1.14	1.29	1.33

Mean Inflow velocity (m/s)	EN 12469 Recommedation Specification (m/s)	Judment refer to EN 12649
0.44	≥ 0.40	Pass

*Mean inflow velocity to achieve product protion in method EN12469 ≥ 0.40 m/s refer to table H.1

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Salathammasop, Thawewatthana, Bangkok 10170 Thailand
Tel : 0-2408-8474-5 Fax : 0-2408-8477 Email : info@crystalcal.com www.crystalcal.com

REPORT OF TEST

Report No. : 25-1325-001
Issue Date : 17 October 2025 Work Order No. : 25/1325

Part 2 HEPA Filter Leak test performane

HEPA Filter leak test by the aerosol challenge at a suitable location on the upstream side of HEPA Filter, sea and construction joints to be tested Ensure that the challenge aerosol concentration , Measure the average upstream aerosol concentration than scan the downstream side of the HEPA Filter by passing the aerosol detection probe slightly overlapping over the entire surface of the HEPA Filter (Refer to EN 12469 D.4)

Detail of the PAO test performance

PAO Concentration on upstream side of HEPA is 24 µg/l

Downstream measured by aerosol photometer calulate ratio of concentration		
Main HEPA Filter (%)	Exhaust HEPA Filter (%)	Pre HEPA Filter (%)
0.004	0.005	N/A

* Acceptance criteria The leak should be not more than 0.01% of the specific before the filter refer to EN 12469 D.3 (a).

Main HEPA Filter diagrams

Leak position

Main HEPA Result of test
Pass

M : Media leak position H : Maximum leak position X : Gasket leak position

Exhaust HEPA Filter diagrams

Leak position

Exhaust HEPA Result of test
Pass

M : Media leak position H : Maximum leak position X : Gasket leak position

CRYSTAL CALIBRATION SALES AND SERVICE CO., LTD.
45/48 Soi Salathammasop31, Salathammasop Rd.,
Salathammasop, Thawewatthana, Bangkok 10170 Thailand
Tel : 0-2408-8474-5 Fax : 0-2408-8477 Email : info@crystalcal.com www.crystalcal.com

REPORT OF TEST

Report No. : 25-1325-001

Issue Date : 17 October 2025 Work Order No. : 25/1325

Part 3 Airflow smoke pattern test performance

The airflow smoke pattern is verification for check cabinet on working area air velocity in cabinet shall be not escape from cabinet to the room.

1. Downflow pattern test	:	Pass
2. View screen retention test	:	Pass
3. Work opening edge retention test	:	Pass
4. Sash / Window seal	:	Pass

Part 4 Site installation test

1. Airflow visual alarms shall be to indicate when 20% loss exhaust volume within 15 s	:	Pass
2. Sash alarms raise the window above 1 inch (2.5cm) from working position	:	N/A
3. Exhaust system alarms for cabinet has the function properly	:	Pass
4. Electrical leakage and ground circuit resistance test (it not circuit leakage)	:	Pass

* site installation refer to NSF/ANSI 49-2008 section F.7 and F.8

Part 5 Cabinet intergrity test (For BSC Class II type A1)

The Bio safety cabinet refer test leakage of internal pressure 250 pa from manometer or difference pressure gauge or using soap solution 25g/l in tepid distilled water it not bubble in joint and gaskets, Hower using difference pressure gauge increasing pressure into cabinet estimate 500pa hold the time 30 min the pressure has to decesing not least 10%

The part 5 cabinet intergrity test laboratory will be ckeck when cabinet new installation, repare, change or remove HEPA filter and relocate to new location

1. soap test check and visul bubbles	:	N/A
2. pressure in cabinet not least 10%	:	N/A

Part 6 sound level test

Measured by the sound meter is placed 1m from the front of the cabinet. With the cabinet running, 2,3 readings will be taken for different duration's (10 and 30 sec).

Mean of measured Background sound level (dBA)**	Mean of measured sound level (dBA)	Accepting criteria	Judgment Refer EN 12469
47.9	61.7	Less than 65 dBA	Pass

* Acceptance criteria less than 65 dBA refer to EN 12469 A.3 or not exceed 70 dBA refer to NSF/ANSI 49 F. 11.4

** Background sound level is measured when turn off the cabinet

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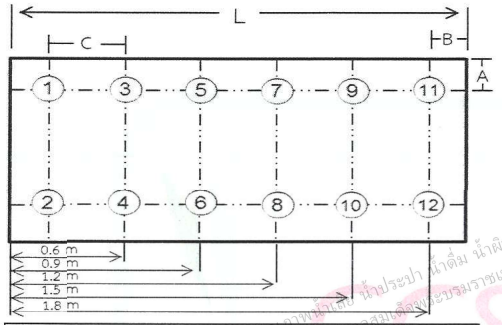
REPORT OF TEST

Report No. : 25-1325-001

Issue Date : 17 October 2025 Work Order No. : 25/1325

Part 7 Illumination and UV test performance

Illumanation and Ultraviolet radiation (UV) measured at the work surface and cover using area grid installation lux meter and UVC meter at any position in below diagram relate with the size of cabinet



when ;

A = distance from wall 6.35 mm

B = distance from eadge 150 mm

C = distance of measured 300mm

L = wide of cabinet is 1.8 m

Diangrams of Illumination and UV measured on work surface

Illumination measured report at any position (Lux)											
1	2	3	4	5	6	7	8	9	10	11	12
555	643	925	1142	1140	1370	1139	1411	885	1103	553	676

Mean of illumination at work surface (Lux)	Acceptance of illumination (Lux)	Judgment Refer EN 12496
962	> 750	Pass

* Acceptance criteria average not less than 750 lux refer to EN 12469 A.2

Ultraviolet radiation measured report at any position ($\mu W/cm^2$)											
1	2	3	4	5	6	7	8	9	10	11	12
56	28	179	67	303	121	368	163	279	134	110	54

Mean of illumination at work surface ($\mu W/cm^2$)	Acceptance of illumination ($\mu W/cm^2$)	Judgment Refer to DMSC
155	> 40	Pass

* Acceptance criteria average not less than 40 $\mu W/cm^2$ refer to DMSC ISBN 978-616-11-2130-3 page 29

- DMSC is Department of Medical Sciences Ministry of Public Health
- Mean of illumination at work surface in report show data after correction value

--END--

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MASTER CALIBRATION CO.,LTD.

Master Calibration Co.,Ltd.
547 Soi Ratchadanivat, Kwaeng Samsennok, Khet Huaykwang, Bangkok 10310
Tel. : (02) 274 2978-9, (02) 2742987-8 Fax : (02) 274 2518, (02) 274 2989
Website : www.mastercalibration.com E-mail : calibrate@mastercalibration.com

Certificate of Calibration

LIQUID BATH

NSC-TISI-TIS 17025
CALIBRATION 0183

Certificate No.: MC 2514415

Customer	:	Water Analysis Center Co., Ltd. 1/94 Moo 5, T.Kantham, A.U-Thai, Ayutthaya 13210.		
Reference Job No.	:	25-2871	Received Date	: 12 December 2025
Description	:	Water Bath	Resolution	: 0.1 °C
Manufacturer	:	ESSTELL	Model	: EWB-122D
Serial No.	:	20180508122	ID. No.	: WWL 0214
Marking	:	Additionally for the purpose of identification by this laboratory a label marked with this certificate number (MC 2514415) has been attached to the case.		
Method	:	In-House calibration procedure MWI-T-029 this method is base on ASTM E 715-2007 "Liquid Bath".		
Location of Calibration	:	Water Analysis Center Co., Ltd. ; Laboratory.		
Environmental Conditions	:	Ambient Temperature : (25.2 to 25.6) °C Relative Humidity : (49.0 to 52.0) %		
Date of Calibration	:	12 December 2025	Date of Issue	: 16 December 2025

Checked by : Chalermkit Rakphada
(Calibration Engineer)

Approved by : Anupong Kanjanawasit
(Technical Manager)

The uncertainties are for a confidence probability of approximately 95%

This certificate is issued in accordance with the conditions of accreditation granted by the National Standardization Council of Thailand-Office of the National Standardization Council that has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of Master Calibration Co.,Ltd.

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Website : www.mastercalibration.com E-mail : calibrate@mastercalibration.com

Reference Standard Instrument :

Description	Certificate No.	Serial No.	Due date	Traceable thru
Data Acquisition/Switch Unit With RTD ID. No.10/1 to 10/5	MC 2503071	MY59002240	17 Mar 2026	MCAL

Traceability :

The measurement standard traceable to the international system of units (SI) through certificate as mentioned above

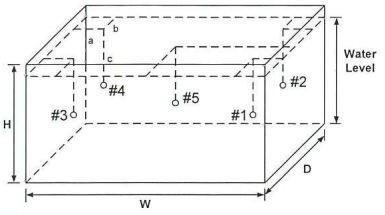
1. Calibration Procedure:

This Instrument was calibration according to ASTM E715 - 2007 by comparison with calibrated sensor under no load condition. The sensor were placed on five points and located one sensor in each of the eigh corners of the chamber and was away from the each wall of 5 cm to 10 cm. And placed the five sensor within 2.5 cm of the geometric center of the chamber.

Temperature Uniformity - the maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time or at as close an observation time as possible to determine the temperature pattern or homogeneity within the chamber under steady state conditions. The reference sensor should preferably be located at the geometric center of the chamber.

Temperature Stability - one-half of the greatest maximum difference of measured temperatures at any one sensor.

Overall Variation - The Difference of the maximum and minmum measured temperatures throughout observation.



- Overall Ambient Temperature around the Chamber veriation : 0.4 °C
- Overall Line Voltage variation 0.0 V
- Chamber Size (W*H*D) : 50 cm x 12 cm x 30 cm
- Water Level : 7 cm

Checked

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Website : www.mastercalibration.com E-mail : calibrate@mastercalibration.com

2. Result of calibration :

Temperature Measurement Accuracy Test

Indicating Temperature (°C)	Measured Temperature (°C) at Spread Locations					Uncertainty of measurement (±°C)
	#1	#2	#3	#4	Ref. #5	
45.0	44.38	44.53	44.62	44.56	44.50	0.80

Chamber Characterization Result

Desired Temperature (°C)	Controller Temperature (°C)	Indicating Temperature (°C)	Temperature Stability (±°C)	Temperature Uniformity (°C)	Overall Variation (°C)
44.5	45.0	45.0	0.66	0.79	1.45

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2.0, providing a level of confidence of approximately 95 %.

This certificate will certify of the calibrated equipment only.

End of Certificate

Checked by

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Certificate of Calibration

TEMPERATURE
CONTROLLER ENCLOSURES

NSC-TISI-TIS 17025
CALIBRATION 0183

Certificate No.: MC 2514417

Customer	:	Water Analysis Center Co., Ltd. 1/94 Moo 5, T.Kantham, A.U-Thai, Ayutthaya 13210.			
Reference Job No.	:	25-2871	Received Date	:	12 December 2025
Description	:	Incubator	Resolution	:	0.1 °C
Manufacturer	:	Memmert	Model	:	IN 260
Serial No.	:	D619.0170	ID. No.	:	WWL 0192
Marking	:	Additionally for the purpose of identification by this laboratory a label marked with this certificate number (MC 2514417) has been attached to the case.			
Method	:	In-house calibration procedure MWI-T-033 this method Base on TLAS G-20-1/02-08 "Temperature Controlled Enclosures".			
Location of Calibration	:	Water Analysis Center Co., Ltd. ; Laboratory.			
Environmental Conditions	:	Ambient Temperature : (24.4 to 24.5) °C Relative Humidity : (62.0 to 64.0) %			
Date of Calibration	:	12 December 2025	Date of Issue	:	16 December 2025

Checked by : Chalermkit Rakphada
(Calibration Engineer)

Approved by : Aittipong Kanjanawant
(Technical Manager)

The uncertainties are for a confidence probability of approximately 95%

This certificate is issued in accordance with the conditions of accreditation granted by the National Standardization Council of Thailand-Office of the National Standardization Council that has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standards laboratory. This certificate may not be reproduced other than in full except with the prior written approval of Master Calibration Co.,Ltd.

[MCF-Q-077 ; Rev.6 ; Date : 22/04/2021]

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Website : www.mastercalibration.com E-mail : calibrate@mastercalibration.com

Reference Standard Instrument :

Description	Certificate No.	Serial No.	Due date	Traceable thru
Data Acquisition/Switch Unit With RTD ID. No.29/1 to 29/9	MC 2504974	US37033620	6 May 2026	MCAL

Traceability :

The measurement standard traceable to the international system of units (SI) through certificate as mentioned above

1. Calibration Procedure:

This Instrument was calibration according to TLAS G-20 by comparison with calibrated thermocouple type T under no load condition. The Thermocouples were placed on nine points and located one thermocouple in each of the eigh corners of the chamber and was away from the each wall of 5 cm to 10 cm. And placed the ninth thermocouple within 2.5 cm of the geometric center of the chamber.

Temperature Uniformity - the maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time or at as close an observation time as possible to determine the temperature pattern or homogeneity within the chamber under steady state conditions. The reference sensor should preferably be located at the geometric center of the chamber.

Temperature Stability - one-half of the greatest maximum difference of measured temperatures at any one sensor.

Overall Variation - The Difference of the maximum and minmum measured temperatures throughout observation.

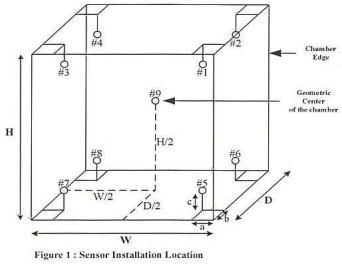


Figure 1 : Sensor Installation Location

Overall Ambient Temperature around the Chamber veriation : 1.2 °C

Overall Line Voltage variation : 0.1 V

Chamber Size (W*H*D) : 65 cm x 80 cm x 50 cm

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Website : www.mastercalibration.com E-mail : calibrate@mastercalibration.com

2. Result of calibration :

Temperature Measurement Accuracy Test

Indicating Temperature (°C)	Measured Temperature (°C) at Spread Locations									Uncertainty (±°C)	* Uncertainty does not include stability. (±°C)
	#1	#2	#3	#4	#5	#6	#7	#8	Ref. #9		
35.0	34.99	35.00	35.02	34.91	34.88	35.00	35.03	34.91	35.04	0.28	0.27

(*) : Non Accredited

Chamber Characterization Result

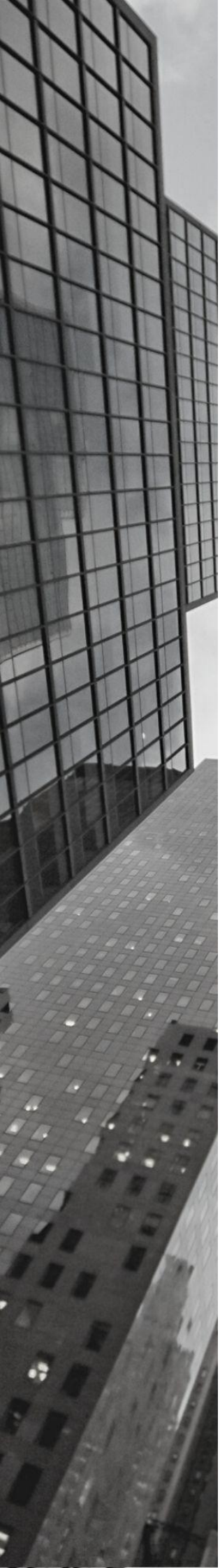
Desired Temperature (°C)	Controller Temperature (°C)	Indicating Temperature (°C)	Temperature Stability (±°C)	Temperature Uniformity (°C)	Overall Variation (°C)
35.0	35.0	35.0	0.06	0.21	0.29

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2.0, providing a level of confidence of approximately 95 %.

This certificate will certify of the calibrated equipment only.

End of Certificate

Checked b



APPENDIX-5

ใบรับรอง/หนังสืออนุญาตขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

ที่ อก ๐๓๑๐(๑)/ ๕๗๒๕

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๐๘ กรกฎาคม ๒๕๖๘

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท ศูนย์วิเคราะห์น้ำ จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน ลงวันที่ ๗ พฤษภาคม ๒๕๖๘

สิ่งที่ส่งมาด้วย เอกสารแนบท้ายหนังสือต่ออายุรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน บริษัท ศูนย์วิเคราะห์น้ำ จำกัด จำนวน ๑๐ แผ่น

ตามคำขอที่อ้างถึง บริษัท ศูนย์วิเคราะห์น้ำ จำกัด ขอต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ว-๑๙๐ สถานที่ตั้งเลขที่ ๑/๙๔ ตำบลคานหาม อำเภออุทัย จังหวัดพระนครศรีอยุธยา ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท ศูนย์วิเคราะห์น้ำ จำกัด ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

ก. ผู้ควบคุมห้องปฏิบัติการวิเคราะห์เอกชน

เอกสารแนบท้ายหนังสือต่ออายุรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
บริษัท ศูนย์วิเคราะห์น้ำ จำกัด เลขทะเบียน ว-๑๙๐
ที่ อก ๐๓๑๐(๑)/ ๕๗๒๔ ลงวันที่ ๐๘ กรกฎาคม ๒๕๖๘

ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๑๒๙ รายการ

น้ำ/น้ำเสีย จำนวน 44 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
2	Arsenic	Digestion, Hydride Generation Atomic Absorption Spectrometric Method[3]
3	Barium	Digestion, Flame Atomic Absorption Spectrometric Method[3]
4	α-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
5	β-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
6	δ-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
7	γ-BHC	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
8	Biochemical Oxygen Demand	1) 5-Day BOD Test, Azide Modification Method[3] 2) 5-Day BOD Test, Membrane-Electrode Method[3]
9	Cadmium	1) Digestion, Flame Atomic Absorption Spectrometric Method[3] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[3]
10	Chemical Oxygen Demand	Closed Reflux, Titrimetric Method[3]
11	Chromium	Digestion, Flame Atomic Absorption Spectrometric Method[3]
12	Color	ADMI Weighted-Ordinate Spectrophotometric Method[3]
13	Copper	Digestion, Flame Atomic Absorption Spectrometric Method[3]
14	Cyanide	Total Cyanide after Distillation, Colorimetric Method[3]
15	4,4′-DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
16	4,4′-DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrom[illegible]
17	4,4′-DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
18	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
19	Endosulfan I	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
20	Endosulfan II	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
21	Endosulfan sulfate	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
22	Endrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
23	Endrin aldehyde	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
24	Formaldehyde	Distillation, Colorimetric Method[1]
25	Free Chlorine	DPD Colorimetric Method[3]
26	Hexavalent Chromium	Colorimetric Method[3]
27	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
28	Heptachlor epoxide	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
29	Lead	1) Digestion, Flame Atomic Absorption Spectrometric Method[3] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[3]
30	Manganese	Digestion, Flame Atomic Absorption Spectrometric Method[3]
31	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[3]
32	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
33	Nickel	Digestion, Flame Atomic Absorption Spectrometric Method[3]
34	Oil & Grease	Soxhlet Extraction Method[3]
35	pH	Electrometric Method[3]
36	Phenols	Distillation, Direct Photometric Method[3]
37	Selenium	Digestion, Hydride Generation Atomic Absorption Spectrometric Method[3]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
38	Sulfide	Iodometric Method[3]
39	Temperature	Laboratory and Field Methods[3]
40	Total Dissolved Solids	Dried at 180 °C[3]
41	Total Kjeldahl Nitrogen	Macro-Kjeldahl Method[3]
42	Total Suspended Solids	Dried from 103 to 105 °C[3]
43	Trivalent Chromium	Calculation[3]
44	Zinc	Digestion, Flame Atomic Absorption Spectrometric Method[3]

น้ำใต้ดิน จำนวน 31 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
2	Antimony	Digestion, Flame Atomic Absorption Spectrometric Method[3]
3	Arsenic	Digestion, Hydride Generation Atomic Absorption Spectrometric Method[3]
4	Barium	Digestion, Flame Atomic Absorption Spectrometric Method[3]
5	Beryllium	Digestion, Flame Atomic Absorption Spectrometric Method[3]
6	Cadmium	1) Digestion, Flame Atomic Absorption Spectrometric Method[3] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[3]
7	Chromium	Digestion, Flame Atomic Absorption Spectrometric Method[3]
8	Chromium (III)	Calculation[3]
9	Chromium (VI)	Colorimetric Method[3]
10	Cyanide	Total Cyanide after Distillation, Colorimetric Method[3]
11	DDD	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
12	DDE	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
13	DDT	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
14	Dieldrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
15	Endrin	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
16	α-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
17	β-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
18	γ-HCH	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
19	Heptachlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
20	Heptachlor epoxide	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
21	Lead	1) Digestion, Flame Atomic Absorption Spectrometric Method[3] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method[3]
22	Manganese	Digestion, Flame Atomic Absorption Spectrometric Method[3]
23	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[3]
24	Methoxychlor	Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[3]
25	Nickel	Digestion, Flame Atomic Absorption Spectrometric Method[3]
26	pH	Electrometric Method[3]
27	Phenol	Distillation, Direct Photometric Method[3]
28	Selenium	Digestion, Hydride Generation Atomic Absorption Spectrometric Method[3]
29	Silver	Digestion, Flame Atomic Absorption Spectrometric Method[3]
30	Vanadium	Digestion, Flame Atomic Absorption Spectrometric Method[3]
31	Zinc	Digestion, Flame Atomic Absorption Spectrometric Method[3]

สิ่งปฏิกูล...

สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน 25 รายการ

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[2,7,15] 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
2	Antimony	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[2,4,9] 2) Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
3	Arsenic	1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[2,4,10] 2) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[5,10]
4	Barium	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[2,4,9] 2) Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
5	Beryllium	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[2,4,9] 2) Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
6	Cadmium	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[2,4,9] 2) Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
7	Chromium	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[2,4,9] 2) Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
8	Chromium (VI)	1) Waste Extraction, Colorimetric Method[2,11] 2) Alkaline Digestion, Colorimetric Method[6,11]
9	Copper	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[2,4,9] 2) Digestion, Flame Atomic Absorption Spectrometric Method[5,9]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
10	DDD	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[2,7,15] 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
11	DDE	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[2,7,15] 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
12	DDT	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[2,7,15] 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
13	Dieldrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[2,7,15] 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
14	Endrin	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[2,7,15] 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
15	Heptachlor	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[2,7,15] 2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
16	Lead	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[2,4,9] 2) Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
17	Lindane	1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method[2,7,15]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
		2) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
18	Mercury	1) Waste Extraction, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[2,12]
		2) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[13]
19	Methoxychlor	Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method[2,7,15]
20	Nickel	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[2,4,9]
		2) Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
21	pH	Electrometric Method[19,20]
22	Selenium	1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[2,4,14]
		2) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[5,14]
23	Silver	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[2,4,9]
		2) Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
24	Vanadium	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[2,4,9]
		2) Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
25	Zinc	1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method[2,4,9]
		2) Digestion, Flame Atomic Absorption Spectrometric Method[5,9]

<u>ดิน จำนวน 29 รายการ</u>

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
1	Aldrin	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
2	Antimony	Digestion, Flame Atomic Absorption Spectrometric Method[5,9]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
3	Arsenic	Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[5,10]
4	Barium	Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
5	Beryllium	Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
6	Cadmium	Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
7	Chromium	Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
8	Chromium (III)	Calculation[5,6,9,11]
9	Chromium (VI)	Alkaline Digestion, Colorimetric Method[6,11]
10	Cyanide	Extraction, Distillation, Colorimetric Method[16,17,18]
11	DDD	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
12	DDE	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
13	DDT	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
14	Dieldrin	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
15	Endrin	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
16	α-HCH	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
17	β-HCH	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
18	γ-HCH	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
19	Heptachlor	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
20	Heptachlor epoxide	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
21	Lead	Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
22	Manganese	Digestion, Flame Atomic Absorption Spectrometric Method[5,9]

ลำดับที่	สารมลพิษ	วิธีวิเคราะห์
23	Mercury	Digestion, Cold-Vapor Atomic Absorption Spectrometric Method[13]
24	Methoxychlor	Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method[8,15]
25	Nickel	Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
26	Selenium	Digestion, Hydride Generation/Atomic Absorption Spectrometric Method[5,14]
27	Silver	Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
28	Vanadium	Digestion, Flame Atomic Absorption Spectrometric Method[5,9]
29	Zinc	Digestion, Flame Atomic Absorption Spectrometric Method[5,9]

เอกสารอ้างอิง

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