

ประเมินผลคุณภาพน้ำใช้ น้ำดื่ม และน้ำเสีย

เสนอ

Centara Grand Mirage Beach Resort Pattaya

ตุลาคม 2568

บริษัท เทสท์ เทค จำกัด

30, 32 ซอยพระรามที่ 2 ซอย 63 ถนนพระรามที่ 2 แขวงสามตำ เขตบางขุนเทียน กรุงเทพฯ 10150
Tel. 02-893-4211 - 17 Fax : 02-893-4218



Messrs : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Factory Site : Centara Grand Pattaya Date : 3 พฤศจิกายน 2568

Recommendation For : คุณภาพน้ำใช้และน้ำดื่มประจำเดือนตุลาคม 2568

Report Reference : R23273-81/68, R22926-27/68, R22760-63/68, R22850-51/68,
R22966/68, R22928/68

RECOMMENDATION

1. คุณภาพน้ำใช้

1.1 Storage Tank : คุณภาพน้ำ มีค่าความขุ่นต่ำ ค่าเหล็กและแมงกานีสไม่พบ, ค่าความกระด้างมีค่าต่ำ, ค่าคลอไรด์มีค่าต่ำ ตรวจไม่พบเชื้อ Coliform/E.coli

หมายเหตุ : การดูแล

- เติมนคลอรีนในระบบผลิตน้ำและน้ำเชื้อก่อนเก็บในถังพัก
- ควรตรวจสอบถังพัก 2 ครั้ง/เดือน และล้างถังเพื่อลดการสะสมของเหล็ก
- ควรดูแลขบวนการปรับสภาพน้ำส่วนต่อเนื่อง

1.2 Soft Water (Main Point) :

- pH ปกติ, ความขุ่นต่ำ
- ค่าความกระด้างต่ำ
- ค่าเหล็กไม่พบ
- ค่าแมงกานีสไม่พบ
- ตรวจไม่พบเชื้อ Coliform/E.coli
- คุณภาพน้ำทางเคมีอื่นๆ ปกติอยู่ในมาตรฐาน

หมายเหตุ : การดูแลระบบ

- ควบคุมค่าเหล็กของน้ำในถังพักให้มีค่าต่ำ เพื่อลดการสะสมของเหล็กใน Softener
- ล้างกลับระบบ Softener ให้บ่อย เพื่อลดการสะสมของเหล็กและเชื้อในระบบกรอง
- ตรวจสอบค่าความกระด้างและควบคุมการล้างเกลือ Softener ให้ต่อเนื่อง เพื่อควบคุมค่าความกระด้างและควบคุมการล้างเกลือที่ตกค้างให้หมด ก่อนใช้งานปกติ
- ควรเติมนคลอรีนในถังพักน้ำใช้และ Regenerate Softener ด้วยน้ำหลังเติมนคลอรีน เพื่อลดการสะสมของเหล็กใน Softener และฆ่าเชื้อที่สะสมในระบบกรอง

1.3 Hot Water System (Main Point) :

- ค่า pH ปกติ, ความขุ่นต่ำ
- ค่าความกระด้างต่ำ
- ค่าเหล็กต่ำ
- ค่าแมกนีเซียมต่ำ
- ตรวจไม่พบ Coliform/E.coli

หมายเหตุ : - ควร Flushing ในระบบผลิตน้ำร้อน เพื่อลดการสะสมของเหล็กในระบบ
- ควบคุม Softener เพื่อควบคุมความกระด้างในระบบผลิตน้ำร้อน อาจก่อให้เกิดปัญหา
ตะกอนในระบบ

1.4 Guest Room Usage Water (Cold Water) : คุณภาพน้ำเย็นห้องพักแยก 2 จุด North A 225

และ North A 227 พบค่าดังนี้

- ค่าความกระด้างและคลอไรด์ใกล้เคียงน้ำในถังพัก
- ค่าความขุ่นต่ำ
- ค่าเหล็กไม่พบ
- ค่าแมกนีเซียมไม่พบ
- ตรวจไม่พบ Coliform/E.coli

หมายเหตุ : - ในกรณีไม่ค่อยเปิดใช้ห้อง ควร Flushing ท่อก่อนเปิดใช้ในโซนที่ไม่ค่อยเปิดห้องพัก
เพื่อลดการสะสมของเหล็ก/แมกนีเซียมในเส้นท่อ
- ตรวจสอบการเติมคลอรีนในถังพักน้ำประปา เพื่อฆ่าเชื้อที่สะสม

1.5 Guest Room Usage Water (Hot Water) : คุณภาพน้ำ 2 จุด คือ North A 225

และ North A 227 พบค่าดังนี้

- ค่าความกระด้างและคลอไรด์ใกล้เคียงน้ำในถังพัก
- ค่าความขุ่นต่ำ
- ค่าเหล็กต่ำ
- ค่าแมกนีเซียมไม่พบ
- ตรวจไม่พบ Coliform/E.coli

หมายเหตุ : ควร Flushing ระบบท่อ ก่อนเปิดใช้ห้องพักเพื่อป้องกันการสะสมของ
ตะกอนเหล็กในเส้นท่อ

1.6 Cooling :

- 1) คุณภาพน้ำมีค่าการนำไฟฟ้าต่ำ
- 2) ค่าความกระด้างสูงกว่ามาตรฐานเล็กน้อย
- 3) ค่าเหล็กตรวจไม่พบ, ค่าแมงกานีสไม่พบ
- 4) เคมิป้องกันตะกรัน (phosphate) มีค่าต่ำ ควรตรวจสอบการเติมเคมี
- 5) ตรวจไม่พบ Legionella spp.

การดูแล

- ตรวจสอบระบบ Softener และผลิตน้ำ Soft ใช้เป็น Make Up Water ให้เพียงพอ และควบคุมการล้างเกลือ เพื่อควบคุมค่าความกระด้าง ≤ 20 ppm
- ควบคุมการเติมเคมีป้องกันตะกรันและตะไคร้ น้ำ เนื่องจากเคมีป้องกันตะกรัน (phosphate) ยังต่ำ
- ควบคุมการระบายน้ำทิ้งให้สม่ำเสมอเพื่อควบคุมค่า การนำไฟฟ้า ≤ 2500 us/cm

1.7 Chilled Water : คุณภาพน้ำมีค่าเหล็กอยู่ในเกณฑ์ ค่า pH สูง ค่า Nitrite มีค่าต่ำกว่าเกณฑ์ควบคุม

หมายเหตุ : ควรเติมเคมีเพิ่มในรอบการบำรุงรักษาถัดไป

2. น้ำดื่ม

- 1) Canteen : ค่าความกระด้างสูงกว่าเกณฑ์เล็กน้อย ไม่พบค่าเหล็กและแมงกานีส
คุณภาพน้ำทางเคมีอื่นๆ อยู่ในมาตรฐาน ตรวจไม่พบ Coliform/E.coli
- 2) Oasis Kitchen : ค่าความกระด้างสูงกว่าเกณฑ์เล็กน้อย ไม่พบค่าเหล็กและแมงกานีส
คุณภาพน้ำทางเคมีอื่นๆ อยู่ในมาตรฐาน ตรวจไม่พบ Coliform/E.coli
- 3) Guest Room (225) : ค่าความกระด้างอยู่ในเกณฑ์มาตรฐาน ไม่พบค่าเหล็กและแมงกานีส
คุณภาพน้ำทางเคมีอื่นๆ อยู่ในมาตรฐาน ตรวจไม่พบ Coliform/E.coli

การดูแล :

- ล้างระบบกรอง Softener และล้างสม่ำเสมอ เพื่อลดค่าความกระด้าง
- Flushing line ด้วยน้ำหลังเติมคลอรีน เพื่อฆ่าเชื้อแบคทีเรียที่สะสมในระบบ
- ตรวจสอบความสะอาดของถังและแท่งคาร์บอนน้ำดื่ม

3. Swimming Pool :

1) Main Pool :

- pH ปกติ
- คลอรีนตรวจพบ 0.71 pm
- ตรวจไม่พบ Coliform/E.coli

2) Lab Pool :

- pH ปกติ
- คลอรีนตรวจพบ 0.76 ppm
- ตรวจไม่พบ Coliform/E.coli

3) Lazy Pool :

- pH ปกติ
- คลอรีนตรวจพบ 0.81 ppm
- ตรวจไม่พบ Coliform/E.coli

4) 18th Flr Pool :

- pH ปกติ
- คลอรีนตรวจพบ 0.91 ppm
- ตรวจไม่พบ Coliform/E.coli

หมายเหตุ : การดูแล

1. ควรตรวจสอบ pH สม่ำเสมอในกรณีค่า pH ต่ำให้ปรับด้วยโซดาไฟหรือโซดาแอช และปรับด้วยกรดเกลือในกรณีค่า pH สูง
2. ตรวจสอบคลอรีนและเติมให้สม่ำเสมอ
3. หมุนเวียนน้ำผ่านกรอง เพื่อไม่ให้ตะกอนสะสม และเชื้อแบคทีเรีย

4. น้ำแข็ง :

- 1) Canteen (Cube) : ตรวจไม่พบ Coliform/E.coli
- 2) Banquet (Flake) : ตรวจไม่พบ Coliform/E.coli
- 3) Flames : ตรวจไม่พบ Coliform/E.coli
- 4) Oasis Kitchen (Flake) : ตรวจไม่พบ Coliform/E.coli

การดูแล :

1. เติมน้ำคลอรีนในน้ำประปาและล้างระบบผลิตน้ำแข็งด้วยน้ำหลังเติมน้ำคลอรีน
 2. ตรวจสอบความสะอาดระบบผลิตน้ำแข็ง
 3. ภาชนะตักน้ำแข็งต้องสะอาด ถังบรรจุต้องสะอาด และควรล้างทุกวัน
 4. อย่าแช่อาหารปะปนในถังบรรจุน้ำแข็ง
 5. ในกรณีน้ำแข็งซื้อ ควรตรวจสอบถุงบรรจุ
5. น้ำเสียออกจากระบบ : ลักษณะน้ำเหลืองจางๆ BOD 133 mg/L และอยู่ในเกณฑ์การควบคุมของ
พหยา ในการปล่อยน้ำทิ้งลงระบบบำบัดรวม (BOD $\leq$ 1000 mg/L) โดยต้องจ่ายค่าบริการบำบัดน้ำทิ้ง
ตามข้อกำหนด
6. น้ำทะเล : มีตะกอนดำ ตรวจพบแบคทีเรีย 9,200 MPN/100 mL



Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sampling by : Test Tech Co., Ltd.

Sampling Date : October 16, 2025

Received Date : October 16, 2025

Report Date : October 30, 2025

Sample Type : Usage Water

Sampling Method : Grab

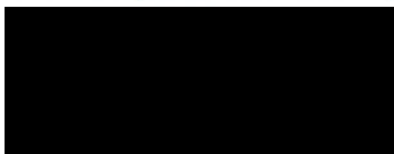
Sampling Time : 11:00 AM

Analytical Date : October 16 - 27, 2025

Report No. : R23273/68

Parameters	Unit	Method	TW20728 /68	TW20729 /68	TW20730 /68	Standard ^a
			Water in Storage Tank	Soft Water System (Main Point)	Hot Water System (Main Point)	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.7	7.3	7.3	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	< 0.50	< 0.50	1.53	5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	451	448	445	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	271	269	267	1000
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	108	108	108	300
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	43	43	43	250
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	< 0.10	0.26	0.3
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	< 0.04	< 0.04	0.04	0.1
Nitrate [#]	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	17.06	15.87	15.33	50
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	44.23	46.14	42.59	250
Sample Condition		Observation	Clear	Clear	Clear	

- Remark :
1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023
 2. Test marked "# " on this report are Accredited International Standard ISO/IEC 17025 by BLA-DSS.
 3. Test marked "@ " on this report are Accredited International Standard ISO/IEC 17025 by BLQS-DMSc.
 4. Test marked " * " on this report are not included in scope of Accreditation
 5. a : Specification for Water Supply Quality of Metropolitan Waterworks Authority.



Analyst

October 30, 2025



October 30, 2025

Reported results refer to the sample as received only.

Test report shall not be reproduced except in full, without written approved of the laboratory.

The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025



ISO/IEC 17025
Accreditation No. 1201/54



Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : October 16, 2025

Sampling Time : 11:00 AM

Received Date : October 16, 2025

Analytical Date : October 16 - 27, 2025

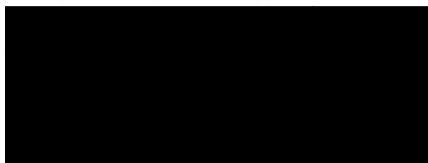
Report Date : October 30, 2025

Report No. : R23274/68

Parameters	Unit	Method	TW20728 /68	TW20729 /68	TW20730 /68	Standard ^a
			Water in Storage Tank	Soft Water System (Main Point)	Hot Water System (Main Point)	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.1	< 1.1	< 1.1	not found
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	not found	not found
Sample Condition		Observation	Clear	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : Specification for Water Supply Quality of Metropolitan Waterworks Authority.



Analyst

October 30, 2025



October 30, 2025

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ISO/IEC 17025
Accreditation No. 1201/54TESTING
NO.0001

Analysis/Test Report

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Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sampling by : Test Tech Co., Ltd.

Sampling Date : October 16, 2025

Received Date : October 16, 2025

Report Date : October 30, 2025

Sample Type : Usage Water

Sampling Method : Grab

Sampling Time : 11:00 AM

Analytical Date : October 16 - 27, 2025

Report No. : R23275/68

Parameters	Unit	Method	TW20731 /68	TW20732 /68	Standard ^a
			Guest Room Cold Water (North A 225)	Guest Room Cold Water (North A 227)	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.7	7.8	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	< 0.50	< 0.50	5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	450	452	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	270	271	1000
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	112	112	300
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	45	44	250
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	< 0.10	0.3
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	< 0.04	< 0.04	0.1
Nitrate [#]	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	14.35	18.38	50
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	43.13	40.95	250
Sample Condition		Observation	Clear	Clear	

- Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023
2. Test marked "# " on this report are Accredited International Standard ISO/IEC 17025 by BLA-DSS.
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Analyst

October 30, 2025



Technical Manager

October 30, 2025

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Sampling Method : Grab

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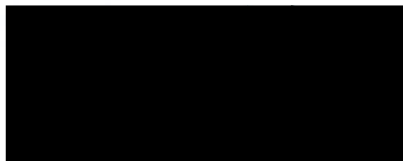
Report Date : October 30, 2025

Report No. : R23276/68

Parameters	Unit	Method	TW20731 /68	TW20732 /68	Standard ^a
			Guest Room Cold Water (North A 225)	Guest Room Cold Water (North A 227)	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.1	< 1.1	not found
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	not found
Sample Condition		Observation	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : Specification for Water Supply Quality of Metropolitan Waterworks Authority.



Analyst

October 30, 2025



Technical Manager

October 30, 2025

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Analysis/Test Report

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Sampling Site : Centara Grand (Pattaya)

Sampling by : Test Tech Co., Ltd.

Sampling Date : October 16, 2025

Received Date : October 16, 2025

Report Date : October 30, 2025

Sample Type : Usage Water

Sampling Method : Grab

Sampling Time : 11:00 AM

Analytical Date : October 16 - 27, 2025

Report No. : R23277/68

Parameters	Unit	Method	TW20733 /68	TW20734 /68	Standard ^a
			Guest Room Hot Water (North A 225)	Guest Room Hot Water (North A 227)	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.3	7.4	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	1.70	1.69	5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	445	445	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	267	267	1000
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	104	108	300
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	44	44	250
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	0.27	0.27	0.3
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	< 0.04	< 0.04	0.1
Nitrate [#]	mg/L as NO ₃ ⁻	SM 2023 (4500-NO ₃ ⁻ E)	15.55	16.42	50
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	43.13	44.77	250
Sample Condition		Observation	Clear	Clear	

- Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023
2. Test marked "# " on this report are Accredited International Standard ISO/IEC 17025 by BLA-DSS.
3. Test marked "@ " on this report are Accredited International Standard ISO/IEC 17025 by BLQS-DMSc.
4. Test marked " * " on this report are not included in scope of Accreditation
5. a : Specification for Water Supply Quality of Metropolitan Waterworks Authority.

Analyst

October 30, 2025

Technical Manager

October 30, 2025

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Test report shall not be reproduced except in full, without written approved of the laboratory.

The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025



Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : October 16, 2025

Sampling Time : 11:00 AM

Received Date : October 16, 2025

Analytical Date : October 16 - 27, 2025

Report Date : October 30, 2025

Report No. : R23278/68

Parameters	Unit	Method	TW20733 /68	TW20734 /68	Standard ^a
			Guest Room Hot Water (North A 225)	Guest Room Hot Water (North A 227)	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.1	< 1.1	not found
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	not found
Sample Condition		Observation	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : Specification for Water Supply Quality of Metropolitan Waterworks Authority.



Analyst

October 30, 2025



Technical Manager

October 30, 2025

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ISO/IEC 17025
Accreditation No. 1201/54TESTING
NO.0001

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : October 16, 2025

Sampling Time : 11:00 AM

Received Date : October 16, 2025

Analytical Date : October 16 - 27, 2025

Report Date : October 30, 2025

Report No. : R23279/68

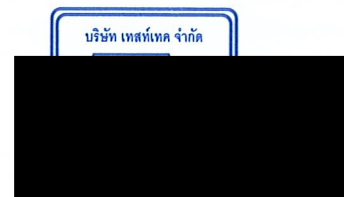
Parameters	Unit	Method	TW20735 /68	Standard ^a (Cooling Water)
			Cooling Water	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.7	8.5 - 9.5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	485	< 2500
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	291	< 2000
* P-Alkalinity	mg/L as CaCO ₃	SM 2023 (2320 B)	< 1	-
* M-Alkalinity	mg/L as CaCO ₃	SM 2023 (2320 B)	70	-
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	104	< 100
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	50	< 400
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	< 1.0
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	< 0.04	-
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	47.50	-
* Silica	mg/L as SiO ₂	SM 2023 (4500-SiO ₂ C)	13.08	-
* Total Phosphorus	mg/L as P	SM 2023 (4500-P D)	0.01	-
Sample Condition		Observation	Light Yellow, Clear	

- Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023
2. Test marked "# " on this report are Accredited International Standard ISO/IEC 17025 by BLA-DSS.
3. Test marked "@ " on this report are Accredited International Standard ISO/IEC 17025 by BLQS-DMSc.
4. Test marked " * " on this report are not included in scope of Accreditation
5. a : เกณฑ์ควบคุมคุณภาพน้ำในระบบต่าง ๆ



Analyst

October 30, 2025



Technical Manager

October 30, 2025

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The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : October 16, 2025

Sampling Time : 11:00 AM

Received Date : October 16, 2025

Analytical Date : October 16 - 27, 2025

Report Date : October 30, 2025

Report No. : R23280/68

Parameters	Unit	Method	TW20735 /68
			Cooling Water
Legionella spp.	/L	ISO 11731 : 2017	not detected
Sample Condition		Observation	Light Yellow, Clear

Analyst

October 30, 2025

บริษัท เทสท์ เทค จำกัด

October 30, 2025

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The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025

ISO/IEC 17025
Accreditation No. 1201/54TESTING
NO.0001

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Usage Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : October 16, 2025

Sampling Time : 11:00 AM

Received Date : October 16, 2025

Analytical Date : October 16 - 27, 2025

Report Date : October 30, 2025

Report No. : R23281/68

Parameters	Unit	Method	TW20736 /68	Standard ^a (Chilled Water)
			Chilled Water	
* pH (25°C)	-	Based on SM 2023 (4500-H ⁺ B)	10.1	7.5 - 9.5
Conductivity [#]	uS/cm	SM 2023 (2510 B)	890	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	534	-
* P-Alkalinity	mg/L as CaCO ₃	SM 2023 (2320 B)	90	-
* M-Alkalinity	mg/L as CaCO ₃	SM 2023 (2320 B)	190	-
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	26	-
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	50	-
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	0.46	< 1.0
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	< 0.04	-
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	42.32	-
Silica [#]	mg/L as SiO ₂	SM 2023 (4500-SiO ₂ C)	5.20	-
* Nitrite	mg/L as NO ₂ ⁻	SM 2023 (4500-NO ₂ ⁻ B)	104	500 - 1000
Sample Condition		Observation	Light Yellow, Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. Test marked "#" on this report are Accredited International Standard ISO/IEC 17025 by BLA-DSS.

3. Test marked "@" on this report are Accredited International Standard ISO/IEC 17025 by BLQS-DMSc.

4. Test marked "*" on this report are not included in scope of Accreditation

5. a : เกณฑ์ควบคุมคุณภาพน้ำในระบบต่าง ๆ (Chilled Water)

Analyst

October 30, 2025

บริษัท เทสท์ เทค จำกัด

Technical Manager

October 30, 2025

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 16/10/2025

Received Date : 16/10/2025

Report Date : 25/10/2025

Sample Type : Drinking Water

Sampling Method : Grab

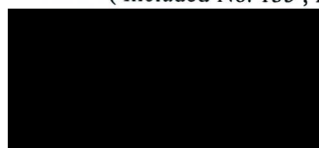
Sampling Time : 11:00 AM

Analytical Date : 16 - 21/10/2025

Report No. : R22926/68

Parameters	Unit	Method	TW20737 /68	TW20738 /68	TW20739 /68	Standard ^a
			Drinking Water (Canteen)	Drinking Water (Oasis Kitchen)	Drinking Water (Guest Room 225)	
pH (25°C) [#]	-	Based on SM 2023 (4500-H ⁺ B)	7.6	7.5	8.0	6.5-8.5
Turbidity [#]	NTU	SM 2023 (2130 B)	< 0.50	< 0.50	< 0.50	≤ 5.0
Conductivity [#]	uS/cm	SM 2023 (2510 B)	448	445	678	-
* Dissolved Solids	mg/L as NaCl	Electrical Conductivity	269	267	407	-
Total Hardness [@]	mg/L as CaCO ₃	SM 2023 (2340 C)	106	106	2 *	≤ 100.0
Chloride [@]	mg/L as Cl ⁻	SM 2023 (4500-Cl ⁻ B)	42	44	1 *	≤ 250.0
Total Iron [#]	mg/L as Fe	SM 2023 (3500-Fe B)	< 0.10	< 0.10	< 0.10	≤ 0.3
Manganese [#]	mg/L	SM 2023 (3500-Mn B)	< 0.04	< 0.04	< 0.04	≤ 0.05
Nitrate Nitrogen [#]	mg/L as NO ₃ ⁻ N	SM 2023 (4500-NO ₃ ⁻ E)	3.41	3.71	0.12	≤ 4.0
Sulfate [#]	mg/L as SO ₄ ²⁻	Based on SM 2023 (4500-SO ₄ ²⁻ E)	41.22	42.32	36.58	≤ 250.0
Sample Condition		Observation	Clear	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023
 2. Test marked "# " on this report are Accredited International Standard ISO/IEC 17025 by BLA-DSS.
 3. Test marked "@ " on this report are Accredited International Standard ISO/IEC 17025 by BLQS-DMSc.
 4. Test marked " * " on this report are not included in scope of Accreditation
 5. a : Notification of the Ministry of Public Health, No. 284 , B.E. 2547 (2004) on "Drinking Water in Sealed Container" (No.5)
 (Included No. 135 , B.E. 2534 (1991) and No. 61, B.E. 2524 (1981))



Analyst

25/10/2025



Technical Manager

25/10/2025

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 16/10/2025

Received Date : 16/10/2025

Report Date : 25/10/2025

Sample Type : Drinking Water

Sampling Method : Grab

Sampling Time : 11:00 AM

Analytical Date : 16 - 21/10/2025

Report No. : R22927/68

Parameters	Unit	Method	TW20737 /68	TW20738 /68	TW20739 /68	Standard ^a
			Drinking Water (Canteen)	Drinking Water (Oasis Kitchen)	Drinking Water (Guest Room 225)	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.1	< 1.1	< 1.1	< 2.2
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	not found	negative
Sample Condition		Observation	Clear	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 20232. a : Notification of the Ministry of Public Health, No. 284 , B.E. 2547 (2004) on "Drinking Water in Sealed Container" (No.5)
(Included No. 135 , B.E. 2534 (1991) and No. 61, B.E. 2524 (1981))

Analyst

25/10/2025

บริษัท เทสท์ เทค จำกัด

Technical Manager

25/10/2025

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Swimming Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 16/10/2025

Sampling Time : 11:00 AM

Received Date : 16/10/2025

Analytical Date : 16 - 20/10/2025

Report Date : 22/10/2025

Report No. : R22760/68

Parameters	Unit	Method	TW20740 /68	TW20741 /68	Standard ^a
			Main Pool	Lab Pool	
pH (25°C)	-	Based on SM 2023 (4500-H ⁺ B)	7.6	7.7	7.2-8.4
Residual Chlorine	mg/L as Cl ₂	SM 2023 (4500-Cl G)	0.71	0.76	0.6-1.0
Sample Condition		Observation	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : Bangkok Metropolitan Administration published in the Royal Government Gazette, Vol.104 ,Part 205, dated October 14, B.E.2530 (1987)

Analyst

22/10/2025

Technical Manager

22/10/2025

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Swimming Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 16/10/2025

Sampling Time : 11:00 AM

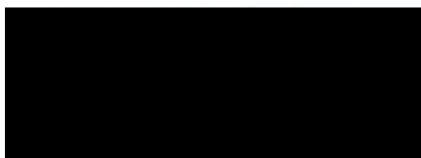
Received Date : 16/10/2025

Analytical Date : 16 - 20/10/2025

Report Date : 22/10/2025

Report No. : R22761/68

Parameters	Unit	Method	TW20740 /68	TW20741 /68	Standard ^a
			Main Pool	Lab Pool	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.8	< 1.8	< 10
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	negative
Sample Condition		Observation	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 20232. a : Bangkok Metropolitan Administration published in the Royal Government Gazette, Vol.104 ,Part 205,dated October 14,
B.E.2530 (1987)

Analyst

22/10/2025



Technical Manager

22/10/2025

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Swimming Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 16/10/2025

Sampling Time : 11:00 AM

Received Date : 16/10/2025

Analytical Date : 16 - 20/10/2025

Report Date : 22/10/2025

Report No. : R22762/68

Parameters	Unit	Method	TW20742 /68	TW20743 /68	Standard ^a
			Lazy Pool	18 th Flr Pool	
pH (25°C)	-	Based on SM 2023 (4500-H ⁺ B)	7.8	7.7	7.2-8.4
Residual Chlorine	mg/L as Cl ₂	SM 2023 (4500-Cl G)	0.81	0.91	0.6-1.0
Sample Condition		Observation	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : Bangkok Metropolitan Administration published in the Royal Government Gazette, Vol.104 ,Part 205,dated October 14, B.E.2530 (1987)

Analyst

22/10/2025

บริษัท เทสท์ เทค จำกัด

Technical Manager

22/10/2025

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sampling by : Test Tech Co., Ltd.

Sampling Date : 16/10/2025

Received Date : 16/10/2025

Report Date : 22/10/2025

Sample Type : Swimming Water

Sampling Method : Grab

Sampling Time : 11:00 AM

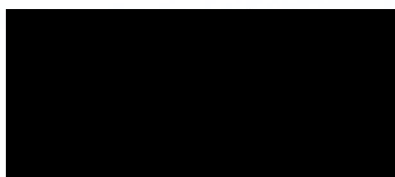
Analytical Date : 16 - 20/10/2025

Report No. : R22763/68

Parameters	Unit	Method	TW20742 /68	TW20743 /68	Standard ^a
			Lazy Pool	18 th Flr Pool	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.8	< 1.8	< 10
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	negative
Sample Condition		Observation	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : Bangkok Metropolitan Administration published in the Royal Government Gazette, Vol.104 ,Part 205,dated October 14,
B.E.2530 (1987)



Analyst

22/10/2025



Technical Manager

22/10/2025

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Ice

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 16/10/2025

Sampling Time : 11:00 AM

Received Date : 16/10/2025

Analytical Date : 16 - 20/10/2025

Report Date : 22/10/2025

Report No. : R22850/68

Parameters	Unit	Method	TW20744 /68	TW20745 /68	Standard ^a
			Canteen (Cube)	Banquet (Flake)	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.1	< 1.1	< 2.2
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	negative
Sample Condition		Observation	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : Notification of the Ministry of Public Health, No. 284 , B.E. 2547 (2004) on "Drinking Water in Sealed Container" (No.5)

(Included No. 135 , B.E. 2534 (1991) and No. 61, B.E. 2524 (1981))



Analyst

22/10/2025

บริษัท เทสท์ เทค จำกัด



Technical Manager

22/10/2025

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Ice

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 16/10/2025

Sampling Time : 11:00 AM

Received Date : 16/10/2025

Analytical Date : 16 - 20/10/2025

Report Date : 22/10/2025

Report No. : R22851/68

Parameters	Unit	Method	TW20746 /68	TW20747 /68	Standard ^a
			Flames	Oasis Kitchen (Flake)	
Coliform Bacteria	MPN/100 mL	SM 2023 (9221 B)	< 1.1	< 1.1	< 2.2
<i>E. coli</i>	/100 mL	SM 2023 (9221 F, Detection)	not found	not found	negative
Sample Condition		Observation	Clear	Clear	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 20232. a : Notification of the Ministry of Public Health, No. 284 , B.E. 2547 (2004) on "Drinking Water in Sealed Container" (No.5)
(Included No. 135 , B.E. 2534 (1991) and No. 61, B.E. 2524 (1981))

Analyst

22/10/2025



Technical Manager

22/10/2025

Reported results refer to the sample as received only.

Test report shall not be reproduced except in full, without written approved of the laboratory.

The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025

Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Waste Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 16/10/2025

Sampling Time : 11:00 AM

Received Date : 16/10/2025

Analytical Date : 16 - 24/10/2025

Report Date : 25/10/2025

Report No. : R22966/68

Parameters	Unit	Method	TW20749 /68	Standard ^a
			Effluent	
pH	-	SM 2023 (4500-H ⁺ B)	7.1	-
BOD	mg/L	SM 2023 (5210 B, 4500-O G)	133	≤ 1000
Total Suspended Solids	mg/L	SM 2023 (2540 D)	104	-
Oil & Grease	mg/L	SM 2023 (5520 D)	7.5	-
Sample Condition		Observation	Light Yellow, Cloud	

Remark : 1. SM 2023 : Standard Methods for the Examination of Water and Wastewater, APHA, AWWA & WEF, 24th ed., 2023

2. a : ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 22 (พ.ศ. 2544) เรื่อง กำหนดอัตราค่าบริการบำบัดน้ำเสียของระบบบำบัดน้ำเสียรวมเมืองพัทยา

Analyst

25/10/2025

บริษัท เทสท์ เทค จำกัด

25/10/2025

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Analysis/Test Report

Customer Name : Centara Grand Mirage Beach Resort Pattaya

Address : 277 Moo 5, Naklua, Banglamung, Pattaya, Chonburi 20150, Thailand

Sampling Site : Centara Grand (Pattaya)

Sample Type : Sea Water

Sampling by : Test Tech Co., Ltd.

Sampling Method : Grab

Sampling Date : 16/10/2025

Sampling Time : 11:00 AM

Received Date : 16/10/2025

Analytical Date : 16 - 22/10/2025

Report Date : 25/10/2025

Report No. : R22928/68

Parameters	Unit	Method	TW20748 /68
			Sea Water
Dissolved Oxygen	mg/L	DO - Meter	6.71
Total Suspended Solids	mg/L	Dried at 103 - 105 °C	17
Oil & Grease	mg/L	Soxhlet Extraction	< 3.0
Total Coliform Bacteria	MPN/100 mL	MPN	9.2 x 10 ³
Temperature	°C	Laboratory and Field	29.6
Transparency	m	Secchi Disc	1.0
Sample Condition		Observation	Light Yellow, a little bit Particles

Analyst

25/10/2025

บริษัท เทสท์ เทค จำกัด

25/10/2025

Reported results refer to the sample as received only.

Test report shall not be reproduced except in full, without written approved of the laboratory.

The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025