

ภาคผนวก ง

ใบรับรองผลการตรวจวิเคราะห์คุณภาพสิ่งแวดล้อม

ภาคผนวก ง.1

ใบรับรองผลการตรวจวัดและวิเคราะห์คุณภาพอากาศในบรรยากาศ

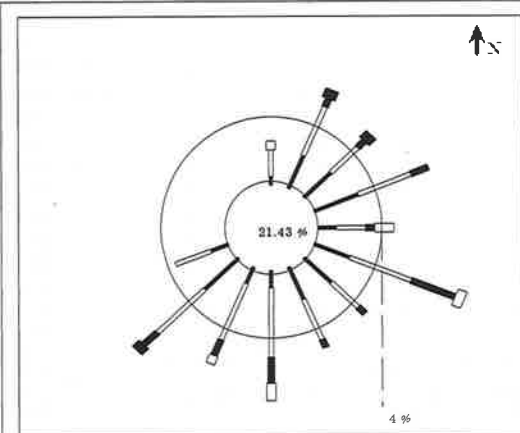


Meteorological Monitoring Results : Wind Rose MTR-Gas Fired Cogeneration Power Plant & Utility Plant

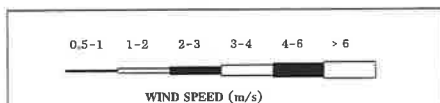
Location : East fence of project site
Wind Speed Model : NRG Symphonie
Wind Direction Model : NRG Symphonie

Monitor period : 18-25 Feb 2022
Serial No : A4905
Serial No : A4905

| Direction | Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed | | | | | | Total |
|-----------|---|---------|---------|---------|---------|-------------|--------|
| | 0.5-1 m/s | 1-2 m/s | 2-3 m/s | 3-4 m/s | 4-6 m/s | More than 6 | |
| N | 0.0060 | 0.0179 | 0.0000 | 0.0060 | 0.0000 | 0.0000 | 0.0298 |
| NNE | 0.0238 | 0.0357 | 0.0060 | 0.0000 | 0.0060 | 0.0000 | 0.0714 |
| NE | 0.0238 | 0.0238 | 0.0060 | 0.0000 | 0.0060 | 0.0000 | 0.0595 |
| ENE | 0.0298 | 0.0357 | 0.0119 | 0.0000 | 0.0000 | 0.0000 | 0.0774 |
| E | 0.0119 | 0.0179 | 0.0060 | 0.0119 | 0.0000 | 0.0000 | 0.0476 |
| ESE | 0.0238 | 0.0417 | 0.0298 | 0.0000 | 0.0000 | 0.0060 | 0.1012 |
| SE | 0.0238 | 0.0238 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0536 |
| SSE | 0.0238 | 0.0298 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0595 |
| S | 0.0119 | 0.0476 | 0.0179 | 0.0119 | 0.0000 | 0.0000 | 0.0893 |
| SSW | 0.0119 | 0.0417 | 0.0119 | 0.0060 | 0.0000 | 0.0000 | 0.0714 |
| SW | 0.0298 | 0.0417 | 0.0119 | 0.0000 | 0.0060 | 0.0000 | 0.0893 |
| WSW | 0.0119 | 0.0238 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0357 |
| W | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| WNW | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NW | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NNW | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CALM | 0.2143 | | | | | | |



Application : WindPro Ver.1.0
Control : 16 Direction Calculation With
Calm Wind < 0.5 m/s
Data Unit : Direction in Deg.
Wind Speed in m/s



NOTE : Frequencies indicate direction from which the wind is blowing

File Control : R:\Database\Windrose\FileControl\Win-222048-East fence of project site 18-25 Feb 2022

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



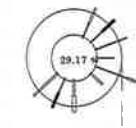
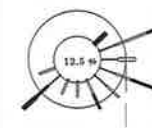
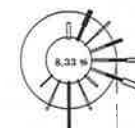
Meteorological Monitoring Results : Wind Rose MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : East fence of project site
Wind Speed Model : NRG Symphonie
Wind Direction Model : NRG Symphonie

Monitor period : 18-25 Feb 2022
Serial No : A4905
Serial No : A4905

| Time | 18-19 Feb 2022 | | 19-20 Feb 2022 | | 20-21 Feb 2022 | | 21-22 Feb 2022 | |
|---------------|----------------|-----|----------------|-----|----------------|-----|----------------|-----|
| | WS(m/s) | WD | WS(m/s) | WD | WS(m/s) | WD | WS(m/s) | WD |
| 10:00 - 11:00 | 2.4 | S | 2.0 | SW | 0.7 | SW | 3.5 | S |
| 11:00 - 12:00 | 0.6 | SW | 1.2 | WSW | 1.1 | SSW | 2.3 | NE |
| 12:00 - 13:00 | 0.9 | SSW | 1.5 | SE | 1.3 | NNE | 1.8 | SE |
| 13:00 - 14:00 | 1.7 | E | 2.1 | SSE | 1.3 | SE | 0.9 | ESE |
| 14:00 - 15:00 | 2.2 | ESE | 3.0 | E | 0.5 | WSW | 0.9 | NE |
| 15:00 - 16:00 | 1.1 | NE | 0.7 | ESE | 1.9 | S | 2.2 | SSW |
| 16:00 - 17:00 | 6.5 | ESE | 0.9 | SW | 1.2 | WSW | 1.0 | ESE |
| 17:00 - 18:00 | 1.1 | ENE | 2.1 | ESE | 1.4 | SW | 0.0 | ENE |
| 18:00 - 19:00 | 2.6 | NNE | 4.8 | SW | 1.1 | SSE | 0.0 | SW |
| 19:00 - 20:00 | 3.3 | E | 2.5 | ENE | 0.9 | ESE | 0.2 | ENE |
| 20:00 - 21:00 | 5.1 | NNE | 1.1 | ENE | 1.2 | S | 0.2 | ENE |
| 21:00 - 22:00 | 2.6 | S | 1.4 | ENE | 0.8 | NE | 1.0 | SW |
| 22:00 - 23:00 | 0.9 | SSE | 2.0 | ESE | 1.5 | ESE | 0.5 | NNE |
| 23:00 - 24:00 | 2.9 | S | 0.5 | ENE | 1.3 | S | 0.0 | SSE |
| 00:00 - 01:00 | 1.6 | SE | 0.0 | S | 2.3 | SE | 1.3 | S |
| 01:00 - 02:00 | 2.4 | ENE | 0.4 | SSE | 1.3 | SW | 0.2 | SW |
| 02:00 - 03:00 | 2.0 | E | 1.8 | SSW | 1.0 | SSE | 0.7 | E |
| 03:00 - 04:00 | 1.6 | ESE | 0.0 | ESE | 0.9 | SE | 0.5 | ESE |
| 04:00 - 05:00 | 0.5 | NE | 0.5 | E | 0.0 | SE | 0.0 | SSW |
| 05:00 - 06:00 | 1.7 | SSE | 1.5 | S | 1.0 | S | 0.9 | SSW |
| 06:00 - 07:00 | 0.4 | NNE | 1.7 | ESE | 1.5 | S | 1.2 | NNE |
| 07:00 - 08:00 | 3.3 | N | 1.5 | SSE | 1.5 | SSW | 1.6 | SW |
| 08:00 - 09:00 | 1.6 | SSW | 4.0 | NE | 0.9 | NE | 0.6 | ENE |
| 09:00 - 10:00 | 0.2 | SE | 0.5 | SE | 0.6 | SW | 0.8 | ENE |

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-222048-East fence of project site 18-25 Feb 2022

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



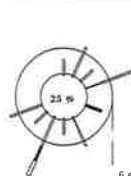
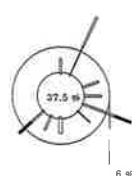
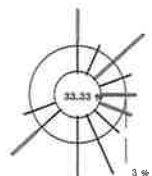
Meteorological Monitoring Results : Wind Rose

MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : East fence of project site Monitor period : 18-25 Feb 2022
 Wind Speed Model : NRG Symphonie Serial No : A4905
 Wind Direction Model : NRG Symphonie Serial No : A4905

| Time | 22-23 Feb 2022 | | 23-24 Feb 2022 | | 24-25 Feb 2022 | |
|---------------|----------------|-----|----------------|-----|----------------|-----|
| | WS(m/s) | WD | WS(m/s) | WD | WS(m/s) | WD |
| 10:00 - 11:00 | 0.6 | S | 0.0 | ESE | 1.3 | WSW |
| 11:00 - 12:00 | 1.8 | NE | 0.0 | ENE | 0.1 | NNE |
| 12:00 - 13:00 | 0.6 | NNE | 1.9 | SW | 0.8 | SSE |
| 13:00 - 14:00 | 0.5 | S | 1.9 | NNE | 1.9 | SSE |
| 14:00 - 15:00 | 1.3 | NE | 0.5 | NNE | 1.2 | S |
| 15:00 - 16:00 | 0.9 | ENE | 1.7 | E | 1.6 | NNE |
| 16:00 - 17:00 | 1.9 | SW | 2.0 | SW | 1.8 | SW |
| 17:00 - 18:00 | 0.2 | SW | 3.4 | S | 0.0 | SSW |
| 18:00 - 19:00 | 0.2 | ENE | 0.0 | SE | 0.3 | SSE |
| 19:00 - 20:00 | 0.0 | SSW | 0.3 | SSW | 2.3 | SSW |
| 20:00 - 21:00 | 0.3 | ENE | 0.4 | S | 0.4 | SSE |
| 21:00 - 22:00 | 0.1 | SW | 0.0 | SW | 3.1 | SSW |
| 22:00 - 23:00 | 0.4 | E | 2.0 | ESE | 1.4 | N |
| 23:00 - 24:00 | 0.7 | SW | 1.1 | SSW | 0.3 | S |
| 00:00 - 01:00 | 0.2 | NE | 1.1 | NNE | 2.2 | ESE |
| 01:00 - 02:00 | 1.4 | E | 0.5 | NNE | 1.7 | SSW |
| 02:00 - 03:00 | 0.6 | SSE | 0.3 | WSW | 1.8 | ENE |
| 03:00 - 04:00 | 0.0 | SSW | 0.4 | SSW | 1.8 | WSW |
| 04:00 - 05:00 | 0.5 | WSW | 1.8 | ESE | 0.8 | ENE |
| 05:00 - 06:00 | 0.7 | N | 1.3 | ESE | 0.4 | E |
| 06:00 - 07:00 | 1.9 | ESE | 1.1 | ENE | 1.8 | ENE |
| 07:00 - 08:00 | 1.9 | N | 1.6 | N | 1.9 | NE |
| 08:00 - 09:00 | 0.7 | SSE | 0.0 | SSW | 1.6 | SSW |
| 09:00 - 10:00 | 0.8 | SE | 0.6 | SE | 1.8 | NNE |

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-222048-East fence of project site 18-25 Feb 2022

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

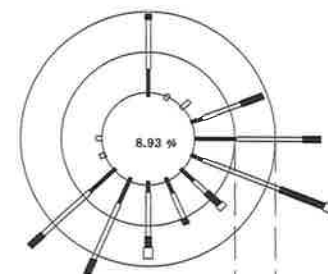


Meteorological Monitoring Results : Wind Rose

MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Environmental & Occupational Medicine Service Monitor period : 18-25 Feb 2022
 Wind Speed Model : NRG Symphonie Serial No : A5902
 Wind Direction Model : NRG Symphonie Serial No : A5902

| Direction | Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed | | | | | | |
|-----------|---|---------|---------|---------|---------|-------------|--------|
| | 0.5-1 m/s | 1-2 m/s | 2-3 m/s | 3-4 m/s | 4-6 m/s | More than 6 | Total |
| N | 0.0298 | 0.0536 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0893 |
| NNE | 0.0000 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0060 |
| NE | 0.0000 | 0.0119 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0119 |
| ENE | 0.0119 | 0.0417 | 0.0238 | 0.0000 | 0.0000 | 0.0000 | 0.0774 |
| E | 0.0417 | 0.0655 | 0.0179 | 0.0000 | 0.0000 | 0.0000 | 0.1250 |
| ESE | 0.0119 | 0.0833 | 0.0476 | 0.0119 | 0.0000 | 0.0060 | 0.1607 |
| SE | 0.0179 | 0.0179 | 0.0179 | 0.0060 | 0.0000 | 0.0000 | 0.0595 |
| SSE | 0.0179 | 0.0298 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0536 |
| S | 0.0119 | 0.0476 | 0.0119 | 0.0119 | 0.0000 | 0.0000 | 0.0833 |
| SSW | 0.0298 | 0.0655 | 0.0179 | 0.0000 | 0.0000 | 0.0000 | 0.1131 |
| SW | 0.0357 | 0.0655 | 0.0179 | 0.0000 | 0.0000 | 0.0000 | 0.1190 |
| WSW | 0.0000 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0060 |
| W | 0.0000 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0060 |
| WNW | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NW | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NNW | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CALM | 0.0893 | | | | | | |



Application : WindPro Ver.1.0
 Control : 16 Direction Calculation With
 Calm Wind < 0.5 m/s
 Data Unit : Direction in Deg.
 Wind Speed in m/s



NOTE : Frequencies indicate direction from which the wind is blowing

File Control : R:\Database\Windrose\FileControl\Win-222048-Environmental & Occupational Medicine Service 18-25 Feb

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



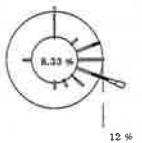
Meteorological Monitoring Results : Wind Rose MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Environmental & Occupational Medicine Service
Wind Speed Model : NRG Symphonie
Wind Direction Model : NRG Symphonie

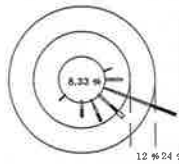
Monitor period : 18-25 Feb 2022
Serial No : A5902
Serial No : A5902

| Time | 18-19 Feb 2022 | | 19-20 Feb 2022 | | 20-21 Feb 2022 | | 21-22 Feb 2022 | |
|---------------|----------------|-----|----------------|-----|----------------|-----|----------------|-----|
| | WS(m/s) | WD | WS(m/s) | WD | WS(m/s) | WD | WS(m/s) | WD |
| 11:00 - 12:00 | 1.2 | W | 2.7 | ESE | 1.7 | ESE | 0.5 | S |
| 12:00 - 13:00 | 0.6 | N | 2.4 | ESE | 3.4 | ESE | 1.1 | N |
| 13:00 - 14:00 | 1.7 | E | 1.7 | E | 1.4 | SSE | 1.3 | S |
| 14:00 - 15:00 | 1.6 | NE | 2.5 | S | 2.8 | E | 1.0 | N |
| 15:00 - 16:00 | 1.8 | S | 0.9 | SSE | 2.2 | SE | 2.4 | ENE |
| 16:00 - 17:00 | 2.0 | ESE | 1.5 | ESE | 1.4 | ESE | 1.6 | SSW |
| 17:00 - 18:00 | 1.0 | E | 1.0 | ESE | 2.0 | ESE | 0.2 | SSE |
| 18:00 - 19:00 | 1.6 | ENE | 1.2 | ESE | 1.3 | E | 0.5 | SSW |
| 19:00 - 20:00 | 3.7 | ESE | 1.6 | SE | 0.5 | ENE | 1.7 | SW |
| 20:00 - 21:00 | 1.4 | ESE | 1.0 | SE | 1.4 | ENE | 0.2 | ESE |
| 21:00 - 22:00 | 0.3 | N | 0.4 | SE | 1.0 | E | 0.6 | N |
| 22:00 - 23:00 | 0.2 | ESE | 0.2 | NE | 0.4 | ESE | 1.9 | SSW |
| 23:00 - 24:00 | 1.6 | SSE | 0.7 | ESE | 2.5 | ENE | 1.2 | S |
| 00:00 - 01:00 | 0.8 | SE | 1.3 | E | 1.0 | N | 0.4 | N |
| 01:00 - 02:00 | 1.4 | ESE | 1.4 | ESE | 2.3 | ESE | 0.6 | E |
| 02:00 - 03:00 | 1.1 | SE | 3.2 | SE | 0.9 | SE | 1.6 | SSE |
| 03:00 - 04:00 | 1.1 | N | 1.4 | SSE | 1.4 | E | 1.4 | SW |
| 04:00 - 05:00 | 1.6 | E | 2.1 | SE | 2.0 | SE | 0.9 | E |
| 05:00 - 06:00 | 0.6 | N | 1.2 | ESE | 1.2 | ESE | 1.5 | ENE |
| 06:00 - 07:00 | 0.5 | N | 0.9 | ENE | 1.4 | ESE | 2.5 | E |
| 07:00 - 08:00 | 2.5 | ESE | 0.6 | SW | 0.5 | E | 1.7 | SW |
| 08:00 - 09:00 | 2.4 | ENE | 2.5 | ESE | 2.5 | E | 2.2 | S |
| 09:00 - 10:00 | 6.5 | ESE | 1.0 | S | 0.7 | SE | 2.3 | SSW |
| 10:00 - 11:00 | 1.6 | ENE | 2.4 | SSE | 1.2 | N | 2.0 | SW |

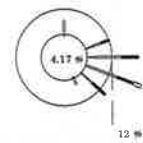
Wind Rose



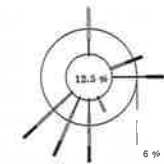
12 %



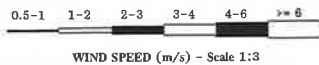
12 % 24 %



12 %



6 %



File Control :R:\Database\Windrose\FileControl\Win-222048-Environmental & Occupational Medicine Service 18-25 Feb 2022

(Signature)
(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Signature)
(Miss Preeda Somjai)
Technical Management Team



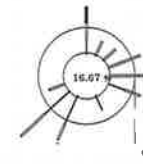
Meteorological Monitoring Results : Wind Rose MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Environmental & Occupational Medicine Service
Wind Speed Model : NRG Symphonie
Wind Direction Model : NRG Symphonie

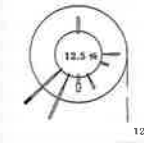
Monitor period : 18-25 Feb 2022
Serial No : A5902
Serial No : A5902

| Time | 22-23 Feb 2022 | | 23-24 Feb 2022 | | 24-25 Feb 2022 | |
|---------------|----------------|-----|----------------|-----|----------------|-----|
| | WS(m/s) | WD | WS(m/s) | WD | WS(m/s) | WD |
| 11:00 - 12:00 | 1.5 | E | 1.7 | N | 2.4 | ENE |
| 12:00 - 13:00 | 1.0 | ENE | 2.8 | SW | 1.6 | S |
| 13:00 - 14:00 | 0.5 | SSE | 1.6 | S | 1.0 | ENE |
| 14:00 - 15:00 | 1.3 | E | 0.6 | E | 2.2 | ESE |
| 15:00 - 16:00 | 1.7 | ESE | 1.8 | SW | 1.1 | N |
| 16:00 - 17:00 | 0.8 | ESE | 1.1 | SSE | 1.5 | ESE |
| 17:00 - 18:00 | 0.3 | E | 0.9 | SSE | 0.6 | E |
| 18:00 - 19:00 | 1.0 | NE | 0.4 | SSW | 1.3 | SW |
| 19:00 - 20:00 | 0.4 | SW | 0.5 | SSW | 1.1 | SSW |
| 20:00 - 21:00 | 0.1 | SW | 0.4 | SSW | 0.7 | SW |
| 21:00 - 22:00 | 1.0 | SW | 0.9 | SSW | 1.7 | SSW |
| 22:00 - 23:00 | 0.5 | SW | 1.7 | SW | 0.6 | E |
| 23:00 - 24:00 | 0.6 | SSW | 1.2 | E | 1.1 | S |
| 00:00 - 01:00 | 0.4 | N | 1.7 | SSW | 1.1 | SSW |
| 01:00 - 02:00 | 0.7 | N | 1.3 | ESE | 1.4 | SW |
| 02:00 - 03:00 | 0.9 | SW | 1.0 | SSW | 1.0 | S |
| 03:00 - 04:00 | 0.8 | SSW | 1.7 | SSW | 0.6 | S |
| 04:00 - 05:00 | 1.4 | SSW | 1.3 | N | 1.1 | SSW |
| 05:00 - 06:00 | 1.3 | WSW | 0.6 | SW | 0.7 | E |
| 06:00 - 07:00 | 1.7 | ENE | 0.3 | N | 0.9 | SW |
| 07:00 - 08:00 | 2.0 | N | 1.0 | SW | 3.2 | S |
| 08:00 - 09:00 | 1.8 | NNE | 1.8 | SSW | 2.7 | SW |
| 09:00 - 10:00 | 1.3 | N | 1.3 | SW | 2.2 | SSW |
| 10:00 - 11:00 | 1.8 | SW | 3.0 | S | 2.7 | SSW |

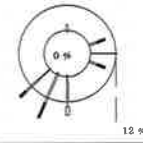
Wind Rose



6 %



12 %



12 %



File Control :R:\Database\Windrose\FileControl\Win-222048-Environmental & Occupational Medicine Service 18-25 Feb 2022

(Signature)
(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Signature)
(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Map Ta Phut New Town

Monitor period : 18-25 Feb 2022

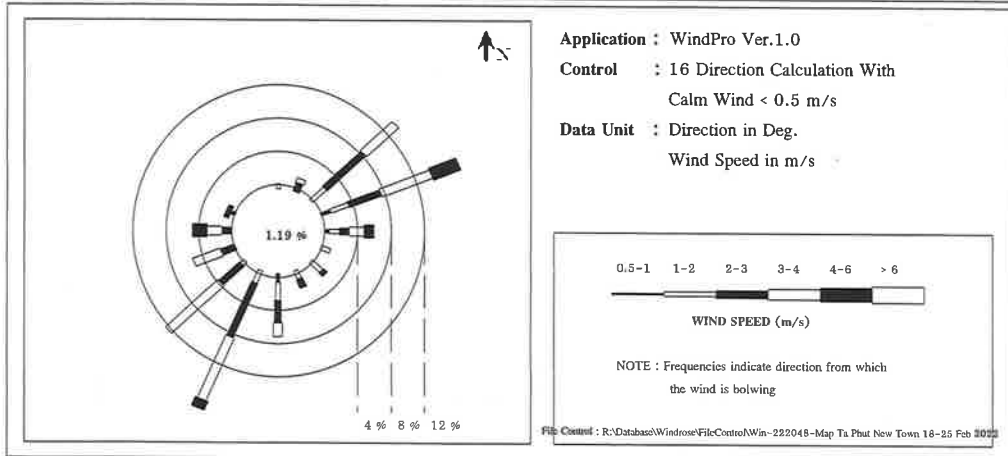
Wind Speed Model : NRG Symphonie

Serial No : C-767

Wind Direction Model : NRG Symphonie

Serial No : C-767

| Direction | Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed | | | | | | |
|-----------|---|---------|---------|---------|---------|-------------|--------|
| | 0.5-1 m/s | 1-2 m/s | 2-3 m/s | 3-4 m/s | 4-6 m/s | More than 6 | Total |
| N | 0.0000 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0060 |
| NNE | 0.0000 | 0.0000 | 0.0119 | 0.0060 | 0.0000 | 0.0000 | 0.0179 |
| NE | 0.0000 | 0.0238 | 0.0655 | 0.0536 | 0.0000 | 0.0000 | 0.1429 |
| ENE | 0.0119 | 0.0238 | 0.0417 | 0.0655 | 0.0357 | 0.0000 | 0.1786 |
| E | 0.0060 | 0.0119 | 0.0119 | 0.0179 | 0.0119 | 0.0000 | 0.0595 |
| ESE | 0.0000 | 0.0119 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0119 |
| SE | 0.0000 | 0.0179 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0238 |
| SSE | 0.0000 | 0.0119 | 0.0119 | 0.0000 | 0.0000 | 0.0000 | 0.0238 |
| S | 0.0119 | 0.0238 | 0.0298 | 0.0179 | 0.0000 | 0.0000 | 0.0833 |
| SSW | 0.0000 | 0.0179 | 0.0774 | 0.0893 | 0.0119 | 0.0000 | 0.1964 |
| SW | 0.0000 | 0.0060 | 0.0357 | 0.0893 | 0.0000 | 0.0000 | 0.1310 |
| WSW | 0.0000 | 0.0000 | 0.0179 | 0.0357 | 0.0000 | 0.0000 | 0.0536 |
| W | 0.0000 | 0.0000 | 0.0119 | 0.0179 | 0.0179 | 0.0000 | 0.0476 |
| WNW | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0060 | 0.0000 | 0.0119 |
| NW | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NNW | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CALM | | | | 0.0119 | | | |



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Map Ta Phut New Town

Monitor period : 18-25 Feb 2022

Wind Speed Model : NRG Symphonie

Serial No : C-767

Wind Direction Model : NRG Symphonie

Serial No : C-767

| Time | 18-19 Feb 2022 | | 19-20 Feb 2022 | | 20-21 Feb 2022 | | 21-22 Feb 2022 | |
|---------------|----------------|-----|----------------|-----|----------------|-----|----------------|-----|
| | WS(m/s) | WD | WS(m/s) | WD | WS(m/s) | WD | WS(m/s) | WD |
| 13:00 - 14:00 | 2.8 | SSW | 3.4 | WSW | 3.6 | SW | 3.0 | S |
| 14:00 - 15:00 | 3.0 | SW | 3.6 | WSW | 3.6 | SW | 2.7 | S |
| 15:00 - 16:00 | 3.4 | SSW | 4.1 | W | 3.8 | SW | 2.3 | S |
| 16:00 - 17:00 | 3.0 | SSW | 3.3 | SW | 3.7 | SW | 2.6 | S |
| 17:00 - 18:00 | 3.4 | SSW | 3.4 | SSW | 3.5 | SSW | 2.8 | S |
| 18:00 - 19:00 | 3.3 | SSW | 2.7 | SSW | 3.1 | SSW | 1.9 | S |
| 19:00 - 20:00 | 4.4 | SSW | 2.3 | SSW | 3.2 | SW | 1.6 | SSE |
| 20:00 - 21:00 | 3.5 | SW | 2.1 | SSW | 2.9 | SW | 1.7 | SE |
| 21:00 - 22:00 | 2.6 | SSW | 2.1 | SSW | 3.2 | SW | 1.5 | SE |
| 22:00 - 23:00 | 1.8 | S | 2.4 | SSW | 3.3 | SW | 2.1 | SE |
| 23:00 - 24:00 | 2.3 | SSW | 2.5 | SSW | 2.7 | SW | 1.8 | ESE |
| 00:00 - 01:00 | 3.1 | SSW | 2.4 | SSW | 3.1 | SSW | 1.7 | E |
| 01:00 - 02:00 | 3.3 | SSW | 1.8 | SSW | 4.8 | W | 2.2 | E |
| 02:00 - 03:00 | 3.3 | SSW | 2.4 | WSW | 3.4 | WSW | 1.9 | NE |
| 03:00 - 04:00 | 3.5 | SW | 2.3 | WSW | 2.7 | SW | 2.4 | NE |
| 04:00 - 05:00 | 3.9 | WSW | 2.4 | W | 3.1 | WSW | 3.1 | NE |
| 05:00 - 06:00 | 4.1 | W | 2.4 | WSW | 2.5 | SW | 2.9 | NE |
| 06:00 - 07:00 | 0.6 | WNW | 1.9 | SW | 2.3 | SW | 3.7 | NE |
| 07:00 - 08:00 | 1.6 | ENE | 3.3 | SSW | 2.2 | SSW | 3.2 | NE |
| 08:00 - 09:00 | 2.5 | SSE | 3.2 | SW | 2.5 | SSW | 3.1 | NE |
| 09:00 - 10:00 | 3.6 | W | 3.3 | SW | 2.8 | SW | 3.4 | ENE |
| 10:00 - 11:00 | 3.6 | W | 3.5 | SW | 3.4 | SSW | 3.4 | ENE |
| 11:00 - 12:00 | 5.0 | WNW | 3.6 | SW | 4.4 | SSW | 2.8 | ENE |
| 12:00 - 13:00 | 3.9 | W | 3.7 | WSW | 3.9 | S | 2.1 | ENE |

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-222048-Map Ta Phut New Town 18-25 Feb 2022

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



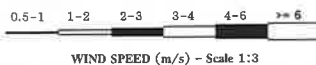
Meteorological Monitoring Results : Wind Rose MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Map Ta Phut New Town
Wind Speed Model : NRG Symphonie
Wind Direction Model : NRG Symphonie

Monitor period : 18-25 Feb 2022
Serial No : C-767
Serial No : C-767

| Time | 22-23 Feb 2022 | | 23-24 Feb 2022 | | 24-25 Feb 2022 | | |
|---------------|----------------|-----|----------------|-----|----------------|-----|--|
| | WS(m/s) | WD | WS(m/s) | WD | WS(m/s) | WD | |
| 13:00 - 14:00 | 2.0 | NE | 3.3 | NE | 3.1 | E | |
| 14:00 - 15:00 | 1.4 | ENE | 2.9 | NNE | 2.1 | ENE | |
| 15:00 - 16:00 | 1.2 | SE | 2.2 | ENE | 3.3 | SSW | |
| 16:00 - 17:00 | 1.4 | SSW | 2.8 | SSE | 3.1 | SSW | |
| 17:00 - 18:00 | 2.1 | S | 3.0 | S | 2.2 | SSW | |
| 18:00 - 19:00 | 2.0 | W | 1.8 | S | 1.1 | SSW | |
| 19:00 - 20:00 | 1.9 | N | 0.6 | S | 0.7 | S | |
| 20:00 - 21:00 | 1.1 | NE | 0.4 | S | 1.7 | SSE | |
| 21:00 - 22:00 | 1.0 | NE | 0.3 | S | 2.6 | E | |
| 22:00 - 23:00 | 1.0 | NE | 1.0 | S | 2.4 | NE | |
| 23:00 - 24:00 | 1.1 | ENE | 1.7 | ESE | 3.3 | NNE | |
| 00:00 - 01:00 | 1.4 | E | 2.4 | ENE | 3.3 | NE | |
| 01:00 - 02:00 | 0.7 | E | 2.4 | ENE | 2.6 | NE | |
| 02:00 - 03:00 | 0.9 | ENE | 3.3 | ENE | 2.4 | NE | |
| 03:00 - 04:00 | 0.8 | ENE | 3.2 | ENE | 2.8 | NE | |
| 04:00 - 05:00 | 1.4 | ENE | 3.2 | NE | 2.7 | NNE | |
| 05:00 - 06:00 | 2.8 | NE | 3.1 | ENE | 2.6 | NE | |
| 06:00 - 07:00 | 2.2 | NE | 3.1 | ENE | 2.7 | NE | |
| 07:00 - 08:00 | 3.3 | NE | 3.6 | ENE | 3.1 | NE | |
| 08:00 - 09:00 | 3.5 | ENE | 4.1 | ENE | 4.2 | ENE | |
| 09:00 - 10:00 | 3.8 | ENE | 4.4 | ENE | 4.4 | ENE | |
| 10:00 - 11:00 | 3.9 | E | 4.6 | E | 4.6 | ENE | |
| 11:00 - 12:00 | 3.6 | ENE | 3.9 | E | 4.8 | ENE | |
| 12:00 - 13:00 | 3.4 | ENE | 2.9 | ENE | 4.4 | E | |

Wind Rose



File Control : R:\Database\Windrose\FileControl\Win-222048-Map Ta Phut New Town 18-25 Feb 2022

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team

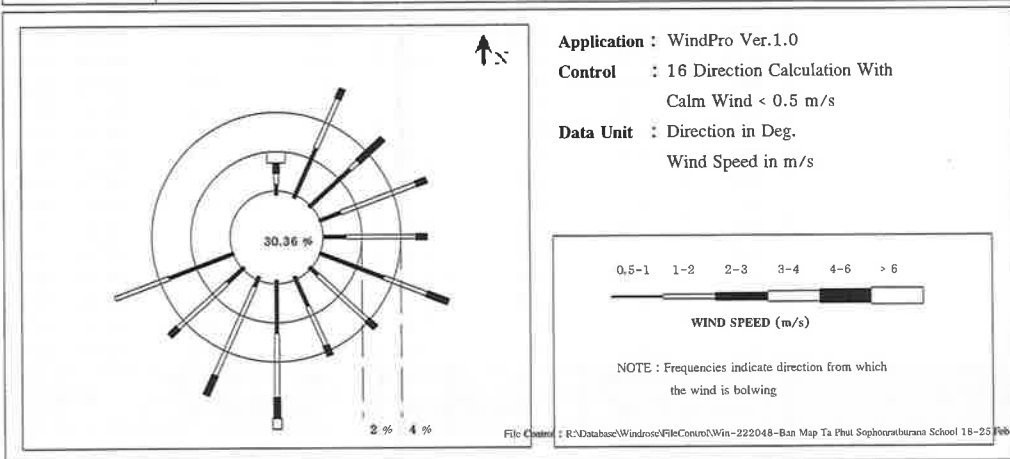


Meteorological Monitoring Results : Wind Rose MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Ban Map Ta Phut Sophonratburana School
Wind Speed Model : NRG Symphonie
Wind Direction Model : NRG Symphonie

Monitor period : 18-25 Feb 2022
Serial No : 4901
Serial No : 4901

| Direction | Percentage of Occurrence of Wind Direct Grouped in Various Wind Speed | | | | | | |
|-----------|---|-----------|-----------|-----------|-----------|-------------|--------|
| | 0.5 - 1 m/s | 1 - 2 m/s | 2 - 3 m/s | 3 - 4 m/s | 4 - 6 m/s | More than 6 | Total |
| N | 0.0060 | 0.0060 | 0.0060 | 0.0000 | 0.0000 | 0.0060 | 0.0238 |
| NNE | 0.0298 | 0.0298 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0655 |
| NE | 0.0298 | 0.0060 | 0.0179 | 0.0000 | 0.0000 | 0.0000 | 0.0536 |
| ENE | 0.0119 | 0.0417 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0595 |
| E | 0.0119 | 0.0357 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0536 |
| ESE | 0.0357 | 0.0238 | 0.0119 | 0.0000 | 0.0000 | 0.0000 | 0.0714 |
| SE | 0.0060 | 0.0357 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0476 |
| SSE | 0.0179 | 0.0238 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0476 |
| S | 0.0298 | 0.0357 | 0.0119 | 0.0060 | 0.0000 | 0.0000 | 0.0833 |
| SSW | 0.0060 | 0.0536 | 0.0119 | 0.0000 | 0.0000 | 0.0000 | 0.0714 |
| SW | 0.0119 | 0.0357 | 0.0060 | 0.0000 | 0.0000 | 0.0000 | 0.0536 |
| WSW | 0.0357 | 0.0298 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0655 |
| W | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| WNW | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NW | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| NNW | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| CALM | 0.3036 | | | | | | |



(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Ban Map Ta Phut Sophonratburana School

Monitor period : 18-25 Feb 2022

Wind Speed Model : NRG Symphonie

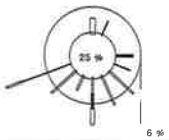
Serial No : 4901

Wind Direction Model : NRG Symphonie

Serial No : 4901

| Time | 18-19 Feb 2022 | | 19-20 Feb 2022 | | 20-21 Feb 2022 | | 21-22 Feb 2022 | |
|---------------|----------------|-----|----------------|-----|----------------|-----|----------------|-----|
| | WS(m/s) | WD | WS(m/s) | WD | WS(m/s) | WD | WS(m/s) | WD |
| 12:00 - 13:00 | 0.1 | E | 2.0 | SSE | 2.9 | SSW | 0.4 | S |
| 13:00 - 14:00 | 1.1 | SSE | 1.5 | SSW | 1.1 | SSW | 1.0 | SE |
| 14:00 - 15:00 | 0.9 | WSW | 2.0 | ENE | 2.1 | S | 0.7 | ESE |
| 15:00 - 16:00 | 1.2 | SW | 0.7 | ESE | 1.5 | SSW | 1.8 | S |
| 16:00 - 17:00 | 1.5 | SSW | 1.1 | ENE | 1.2 | NE | 0.9 | SSE |
| 17:00 - 18:00 | 0.5 | WSW | 0.8 | NE | 1.6 | S | 0.0 | SW |
| 18:00 - 19:00 | 1.3 | WSW | 0.8 | SSW | 0.8 | NE | 0.0 | SSE |
| 19:00 - 20:00 | 3.3 | S | 1.1 | E | 0.2 | NNE | 1.1 | SE |
| 20:00 - 21:00 | 0.8 | ESE | 0.4 | SE | 1.3 | SW | 0.0 | NE |
| 21:00 - 22:00 | 0.0 | N | 0.0 | E | 0.7 | SW | 0.0 | E |
| 22:00 - 23:00 | 0.0 | SSE | 0.0 | SSE | 0.2 | NE | 1.6 | WSW |
| 23:00 - 24:00 | 1.1 | SSE | 0.4 | WSW | 2.3 | N | 0.8 | ESE |
| 00:00 - 01:00 | 0.4 | SE | 1.1 | ESE | 0.7 | NE | 0.0 | N |
| 01:00 - 02:00 | 1.3 | S | 0.7 | NE | 1.7 | NNE | 0.2 | S |
| 02:00 - 03:00 | 0.8 | WSW | 2.6 | ESE | 0.2 | SE | 1.0 | SE |
| 03:00 - 04:00 | 0.5 | NNE | 0.7 | ENE | 1.1 | WSW | 1.3 | SSW |
| 04:00 - 05:00 | 1.1 | SE | 1.6 | ENE | 1.3 | ENE | 0.4 | NNE |
| 05:00 - 06:00 | 0.0 | NNE | 1.0 | ENE | 0.5 | NNE | 0.9 | E |
| 06:00 - 07:00 | 0.3 | SE | 0.4 | E | 1.0 | SSE | 2.0 | ESE |
| 07:00 - 08:00 | 2.1 | E | 0.4 | SSW | 0.2 | SSE | 1.2 | ENE |
| 08:00 - 09:00 | 1.9 | SW | 1.9 | SW | 2.2 | SSW | 1.5 | ENE |
| 09:00 - 10:00 | 6.1 | N | 0.4 | SSE | 0.1 | NNE | 2.1 | NNE |
| 10:00 - 11:00 | 1.5 | SE | 1.8 | NNE | 0.7 | SSE | 1.4 | ENE |
| 11:00 - 12:00 | 2.1 | S | 1.3 | NNE | 0.4 | SE | 1.1 | SE |

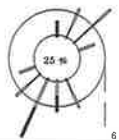
Wind Rose



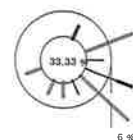
25.17



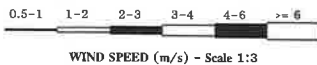
29.17



25.17



33.33



WIND SPEED (m/s) - Scale 1:3

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Meteorological Monitoring Results : Wind Rose

MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Ban Map Ta Phut Sophonratburana School

Monitor period : 18-25 Feb 2022

Wind Speed Model : NRG Symphonie

Serial No : 4901

Wind Direction Model : NRG Symphonie

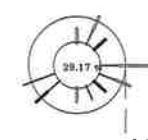
Serial No : 4901

| Time | 22-23 Feb 2022 | | 23-24 Feb 2022 | | 24-25 Feb 2022 | |
|---------------|----------------|-----|----------------|-----|----------------|-----|
| | WS(m/s) | WD | WS(m/s) | WD | WS(m/s) | WD |
| 12:00 - 13:00 | 0.9 | S | 2.1 | SW | 1.1 | S |
| 13:00 - 14:00 | 0.0 | S | 1.2 | S | 0.5 | NNE |
| 14:00 - 15:00 | 1.2 | S | 0.4 | ESE | 1.8 | NNE |
| 15:00 - 16:00 | 1.2 | ESE | 1.4 | NNE | 0.4 | S |
| 16:00 - 17:00 | 0.6 | S | 0.9 | SSE | 1.1 | SSW |
| 17:00 - 18:00 | 0.0 | E | 0.2 | SSW | 0.0 | SSW |
| 18:00 - 19:00 | 0.9 | S | 0.0 | S | 0.6 | NE |
| 19:00 - 20:00 | 0.2 | SSE | 0.0 | ENE | 0.6 | NNE |
| 20:00 - 21:00 | 0.0 | SW | 0.0 | SE | 0.3 | SSE |
| 21:00 - 22:00 | 0.9 | SE | 0.7 | E | 1.1 | SW |
| 22:00 - 23:00 | 0.0 | SE | 1.0 | E | 0.4 | ESE |
| 23:00 - 24:00 | 0.0 | N | 0.5 | SW | 0.9 | ENE |
| 00:00 - 01:00 | 0.0 | SSE | 1.0 | N | 0.9 | WSW |
| 01:00 - 02:00 | 0.0 | ENE | 0.9 | WSW | 1.0 | WSW |
| 02:00 - 03:00 | 0.2 | SW | 0.5 | WSW | 0.6 | S |
| 03:00 - 04:00 | 0.2 | ESE | 1.3 | E | 0.3 | WSW |
| 04:00 - 05:00 | 1.2 | SSW | 0.6 | ESE | 0.6 | ESE |
| 05:00 - 06:00 | 0.8 | S | 0.3 | N | 0.0 | NE |
| 06:00 - 07:00 | 1.2 | WSW | 0.1 | SSW | 0.3 | S |
| 07:00 - 08:00 | 1.6 | SW | 0.7 | NNE | 2.7 | NE |
| 08:00 - 09:00 | 1.6 | SSW | 1.6 | E | 2.0 | NE |
| 09:00 - 10:00 | 0.6 | N | 1.0 | ESE | 1.2 | SSE |
| 10:00 - 11:00 | 1.5 | ESE | 2.4 | NE | 1.9 | E |
| 11:00 - 12:00 | 1.3 | SSW | 2.0 | SE | 1.7 | E |

Wind Rose



41.67



28.17



29.17



WIND SPEED (m/s) - Scale 1:3

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

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TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : Glow Energy Public Co., Ltd. **REFERENCE NO.** : 222048 Amb (Cert.)/Feb/PM-10
SAMPLING BY : SECOT Co., Ltd. **SAMPLING DATE** : 18-25/02/2022
RECEIVED DATE : 28/02/2022 **ANALYTICAL DATE** : 01-04/03/2022
REPORT DATE : 07/03/2022 **SAMPLE CONDITION** : Normal
SITE OPERATOR : Mr. Sittichai Sawangwongchai
LOCATION DESCRIPTION : 1. Map Ta Phut New Town
 2. Environmental & Occupational Medicine Service
 3. East Fence of Project Site
 4. Ban Map Ta Phut (Sophonratburana School)

| PARAMETER | SAMPLING DATE | UNITS | RESULTS | | | | STANDARD* | REFERENCE METHODS |
|---------------|---------------|-------------------|---------|-------|-------|-------|-----------|-------------------------|
| | | | 1 | 2 | 3 | 4 | | |
| PM-10 (24 hr) | 18-19/02/2022 | mg/m ³ | 0.014 | 0.018 | 0.017 | 0.014 | 0.120 | High Volume Air Sampler |
| | 19-20/02/2022 | mg/m ³ | 0.015 | 0.018 | 0.016 | 0.015 | | (Hi-Vol PM-10 Size |
| | 20-21/02/2022 | mg/m ³ | 0.013 | 0.015 | 0.014 | 0.013 | | Selective Inlet)/ |
| | 21-22/02/2022 | mg/m ³ | 0.024 | 0.038 | 0.032 | 0.024 | | Gravimetric Method |
| | 22-23/02/2022 | mg/m ³ | 0.036 | 0.049 | 0.049 | 0.036 | | |
| | 23-24/02/2022 | mg/m ³ | 0.040 | 0.062 | 0.059 | 0.040 | | |
| | 24-25/02/2022 | mg/m ³ | 0.042 | 0.072 | 0.062 | 0.042 | | |
| | | | | | | | | |

Phatchara Samanchan
(Miss Phatchara Samanchan)

Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. * Notification of National Environment Board, No.24, B.E.2547 (2004).



บริษัท ซีคอต จำกัด
SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

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TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

AMBIENT AIR QUALITY ANALYSIS REPORT

CLIENT NAME : Glow Energy Public Co., Ltd. **REFERENCE NO.** : 222048 Amb (Cert.)/Feb/TSP
SAMPLING BY : SECOT Co., Ltd. **SAMPLING DATE** : 18-25/02/2022
RECEIVED DATE : 28/02/2022 **ANALYTICAL DATE** : 01-04/03/2022
REPORT DATE : 07/03/2022 **SAMPLE CONDITION** : Normal
SITE OPERATOR : Mr. Sittichai Sawangwongchai
LOCATION DESCRIPTION : 1. Map Ta Phut New Town
 2. Environmental & Occupational Medicine Service
 3. East Fence of Project Site
 4. Ban Map Ta Phut (Sophonratburana School)

| PARAMETER | SAMPLING DATE | UNITS | RESULTS | | | | STANDARD* | REFERENCE METHODS |
|-------------|---------------|-------------------|---------|-------|-------|-------|-----------|---------------------|
| | | | 1 | 2 | 3 | 4 | | |
| TSP (24 hr) | 18-19/02/2022 | mg/m ³ | 0.024 | 0.032 | 0.029 | 0.025 | 0.330 | High Volume Air |
| | 19-20/02/2022 | mg/m ³ | 0.025 | 0.027 | 0.025 | 0.025 | | Sampler/Gravimetric |
| | 20-21/02/2022 | mg/m ³ | 0.023 | 0.024 | 0.022 | 0.022 | | Method |
| | 21-22/02/2022 | mg/m ³ | 0.040 | 0.056 | 0.053 | 0.036 | | |
| | 22-23/02/2022 | mg/m ³ | 0.061 | 0.075 | 0.082 | 0.055 | | |
| | 23-24/02/2022 | mg/m ³ | 0.065 | 0.095 | 0.110 | 0.063 | | |
| | 24-25/02/2022 | mg/m ³ | 0.073 | 0.114 | 0.116 | 0.068 | | |
| | | | | | | | | |

Phatchara Samanchan
(Miss Phatchara Samanchan)

Analyst

Narisa Poowasanpetch
(Miss Narisa Poowasanpetch)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. * Notification of National Environment Board, No.24, B.E.2547 (2004).



Ambient Air Monitoring Results : Sulfur dioxide MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : East fence of project site Monitor Period : 18-25 Feb 2022
Analyzer Model : API 100A Station No : 17
Serial No : 382 Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D. : EB0108319
Certified Date : 13 Jan 2022 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 12 Jan 2023

| Time | SO2 Concentration (ppm) | | | | | | |
|---------------|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 18-19 Feb 2022 | 19-20 Feb 2022 | 20-21 Feb 2022 | 21-22 Feb 2022 | 22-23 Feb 2022 | 23-24 Feb 2022 | 24-25 Feb 2022 |
| 10:00 - 11:00 | 0.0013 | 0.0047 | 0.0058 | 0.0019 | 0.0049 | 0.0028 | 0.0033 |
| 11:00 - 12:00 | 0.0041 | 0.0044 | 0.0029 | 0.0034 | 0.0017 | 0.0050 | 0.0035 |
| 12:00 - 13:00 | 0.0031 | 0.0044 | 0.0050 | 0.0055 | 0.0029 | 0.0020 | 0.0047 |
| 13:00 - 14:00 | 0.0018 | 0.0056 | 0.0014 | 0.0044 | 0.0046 | 0.0016 | 0.0032 |
| 14:00 - 15:00 | 0.0045 | 0.0036 | 0.0025 | 0.0044 | 0.0044 | 0.0057 | 0.0022 |
| 15:00 - 16:00 | 0.0055 | 0.0037 | 0.0020 | 0.0035 | 0.0051 | 0.0054 | 0.0043 |
| 16:00 - 17:00 | 0.0057 | 0.0027 | 0.0048 | 0.0013 | 0.0048 | 0.0039 | 0.0028 |
| 17:00 - 18:00 | 0.0050 | 0.0023 | 0.0040 | 0.0048 | 0.0027 | 0.0053 | 0.0049 |
| 18:00 - 19:00 | 0.0020 | 0.0035 | 0.0056 | 0.0052 | 0.0057 | 0.0047 | 0.0047 |
| 19:00 - 20:00 | 0.0046 | 0.0029 | 0.0045 | 0.0022 | 0.0029 | 0.0041 | 0.0030 |
| 20:00 - 21:00 | 0.0054 | 0.0056 | 0.0022 | 0.0030 | 0.0049 | 0.0049 | 0.0056 |
| 21:00 - 22:00 | 0.0054 | 0.0020 | 0.0039 | 0.0022 | 0.0046 | 0.0036 | 0.0023 |
| 22:00 - 23:00 | 0.0038 | 0.0023 | 0.0033 | 0.0033 | 0.0053 | 0.0021 | 0.0039 |
| 23:00 - 00:00 | 0.0015 | 0.0052 | 0.0041 | 0.0045 | 0.0019 | 0.0029 | 0.0041 |
| 00:00 - 01:00 | 0.0057 | 0.0015 | 0.0019 | 0.0055 | 0.0016 | 0.0024 | 0.0026 |
| 01:00 - 02:00 | 0.0038 | 0.0028 | 0.0052 | 0.0057 | 0.0042 | 0.0034 | 0.0024 |
| 02:00 - 03:00 | 0.0015 | 0.0023 | 0.0021 | 0.0032 | 0.0054 | 0.0015 | 0.0016 |
| 03:00 - 04:00 | 0.0014 | 0.0020 | 0.0042 | 0.0030 | 0.0047 | 0.0024 | 0.0050 |
| 04:00 - 05:00 | 0.0048 | 0.0031 | 0.0058 | 0.0040 | 0.0052 | 0.0035 | 0.0042 |
| 05:00 - 06:00 | 0.0018 | 0.0044 | 0.0040 | 0.0031 | 0.0016 | 0.0022 | 0.0023 |
| 06:00 - 07:00 | 0.0016 | 0.0054 | 0.0018 | 0.0024 | 0.0045 | 0.0023 | 0.0021 |
| 07:00 - 08:00 | 0.0058 | 0.0034 | 0.0032 | 0.0048 | 0.0026 | 0.0034 | 0.0041 |
| 08:00 - 09:00 | 0.0014 | 0.0048 | 0.0013 | 0.0022 | 0.0022 | 0.0024 | 0.0040 |
| 09:00 - 10:00 | 0.0018 | 0.0016 | 0.0036 | 0.0047 | 0.0025 | 0.0037 | 0.0055 |
| Average-24Hr* | 0.0035 | 0.0035 | 0.0035 | 0.0037 | 0.0038 | 0.0034 | 0.0036 |
| Max-1Hr | 0.0058 | 0.0056 | 0.0058 | 0.0057 | 0.0057 | 0.0057 | 0.0056 |
| Min-1Hr | 0.0013 | 0.0015 | 0.0013 | 0.0013 | 0.0016 | 0.0015 | 0.0016 |

Standard-1Hr 0.30 ppm(780 ug/cu.m)
Standard-24Hr 0.12 ppm(300 ug/cu.m)

Remark : * Average time between 10:00-10:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Sulfur dioxide MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Environmental & Occupational Medicine Service Monitor Period : 18-25 Feb 2022
Analyzer Model : API 100A Station No : 19
Serial No : 238 Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D. : EB0108319
Certified Date : 13 Jan 2022 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 12 Jan 2023

| Time | SO2 Concentration (ppm) | | | | | | |
|---------------|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 18-19 Feb 2022 | 19-20 Feb 2022 | 20-21 Feb 2022 | 21-22 Feb 2022 | 22-23 Feb 2022 | 23-24 Feb 2022 | 24-25 Feb 2022 |
| 12:00 - 13:00 | 0.0041 | 0.0039 | 0.0032 | 0.0041 | 0.0048 | 0.0041 | 0.0040 |
| 13:00 - 14:00 | 0.0041 | 0.0046 | 0.0034 | 0.0038 | 0.0036 | 0.0036 | 0.0042 |
| 14:00 - 15:00 | 0.0044 | 0.0035 | 0.0041 | 0.0048 | 0.0043 | 0.0039 | 0.0045 |
| 15:00 - 16:00 | 0.0035 | 0.0045 | 0.0041 | 0.0038 | 0.0039 | 0.0042 | 0.0041 |
| 16:00 - 17:00 | 0.0035 | 0.0034 | 0.0040 | 0.0050 | 0.0044 | 0.0043 | 0.0049 |
| 17:00 - 18:00 | 0.0042 | 0.0040 | 0.0048 | 0.0043 | 0.0045 | 0.0032 | 0.0044 |
| 18:00 - 19:00 | 0.0047 | 0.0042 | 0.0038 | 0.0039 | 0.0040 | 0.0041 | 0.0041 |
| 19:00 - 20:00 | 0.0033 | 0.0051 | 0.0040 | 0.0041 | 0.0034 | 0.0040 | 0.0048 |
| 20:00 - 21:00 | 0.0038 | 0.0038 | 0.0031 | 0.0042 | 0.0039 | 0.0034 | 0.0039 |
| 21:00 - 22:00 | 0.0038 | 0.0041 | 0.0043 | 0.0036 | 0.0034 | 0.0044 | 0.0041 |
| 22:00 - 23:00 | 0.0042 | 0.0041 | 0.0049 | 0.0041 | 0.0045 | 0.0037 | 0.0034 |
| 23:00 - 00:00 | 0.0031 | 0.0036 | 0.0043 | 0.0031 | 0.0040 | 0.0045 | 0.0033 |
| 00:00 - 01:00 | 0.0040 | 0.0033 | 0.0037 | 0.0040 | 0.0044 | 0.0041 | 0.0043 |
| 01:00 - 02:00 | 0.0043 | 0.0049 | 0.0046 | 0.0038 | 0.0043 | 0.0037 | 0.0031 |
| 02:00 - 03:00 | 0.0037 | 0.0037 | 0.0047 | 0.0031 | 0.0041 | 0.0046 | 0.0039 |
| 03:00 - 04:00 | 0.0048 | 0.0038 | 0.0046 | 0.0034 | 0.0031 | 0.0039 | 0.0044 |
| 04:00 - 05:00 | 0.0039 | 0.0041 | 0.0046 | 0.0039 | 0.0041 | 0.0050 | 0.0030 |
| 05:00 - 06:00 | 0.0041 | 0.0038 | 0.0045 | 0.0040 | 0.0041 | 0.0038 | 0.0037 |
| 06:00 - 07:00 | 0.0042 | 0.0036 | 0.0040 | 0.0051 | 0.0039 | 0.0040 | 0.0042 |
| 07:00 - 08:00 | 0.0041 | 0.0042 | 0.0040 | 0.0042 | 0.0046 | 0.0040 | 0.0039 |
| 08:00 - 09:00 | 0.0040 | 0.0045 | 0.0042 | 0.0049 | 0.0037 | 0.0048 | 0.0040 |
| 09:00 - 10:00 | 0.0037 | 0.0036 | 0.0041 | 0.0040 | 0.0045 | 0.0041 | 0.0040 |
| 10:00 - 11:00 | 0.0033 | 0.0046 | 0.0032 | 0.0045 | 0.0039 | 0.0033 | 0.0039 |
| 11:00 - 12:00 | 0.0042 | 0.0048 | 0.0043 | 0.0038 | 0.0038 | 0.0045 | 0.0047 |
| Average-24Hr* | 0.0040 | 0.0041 | 0.0041 | 0.0041 | 0.0041 | 0.0041 | 0.0040 |
| Max-1Hr | 0.0048 | 0.0051 | 0.0049 | 0.0051 | 0.0048 | 0.0050 | 0.0049 |
| Min-1Hr | 0.0031 | 0.0033 | 0.0031 | 0.0031 | 0.0031 | 0.0032 | 0.0030 |

Standard-1Hr 0.30 ppm(780 ug/cu.m)
Standard-24Hr 0.12 ppm(300 ug/cu.m)

Remark : * Average time between 12:00-12:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Sulfur dioxide MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Map Ta Phut New Town Monitor Period : 18-25 Feb 2022
Analyzer Model : API 100A Station No : 14
Serial No : 347 Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D. : EB0108319
Certified Date : 13 Jan 2022 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 12 Jan 2023

| Time | SO2 Concentration (ppm) | | | | | | |
|---------------|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 18-19 Feb 2022 | 19-20 Feb 2022 | 20-21 Feb 2022 | 21-22 Feb 2022 | 22-23 Feb 2022 | 23-24 Feb 2022 | 24-25 Feb 2022 |
| 13:00 - 14:00 | 0.0031 | 0.0035 | 0.0029 | 0.0034 | 0.0039 | 0.0039 | 0.0031 |
| 14:00 - 15:00 | 0.0036 | 0.0043 | 0.0032 | 0.0033 | 0.0030 | 0.0031 | 0.0039 |
| 15:00 - 16:00 | 0.0043 | 0.0035 | 0.0031 | 0.0041 | 0.0042 | 0.0034 | 0.0042 |
| 16:00 - 17:00 | 0.0032 | 0.0040 | 0.0042 | 0.0033 | 0.0041 | 0.0038 | 0.0038 |
| 17:00 - 18:00 | 0.0029 | 0.0029 | 0.0036 | 0.0041 | 0.0033 | 0.0031 | 0.0042 |
| 18:00 - 19:00 | 0.0035 | 0.0041 | 0.0040 | 0.0034 | 0.0039 | 0.0029 | 0.0034 |
| 19:00 - 20:00 | 0.0041 | 0.0031 | 0.0037 | 0.0032 | 0.0032 | 0.0038 | 0.0038 |
| 20:00 - 21:00 | 0.0030 | 0.0042 | 0.0043 | 0.0034 | 0.0032 | 0.0041 | 0.0041 |
| 21:00 - 22:00 | 0.0036 | 0.0034 | 0.0029 | 0.0042 | 0.0033 | 0.0031 | 0.0041 |
| 22:00 - 23:00 | 0.0037 | 0.0042 | 0.0033 | 0.0037 | 0.0030 | 0.0037 | 0.0040 |
| 23:00 - 00:00 | 0.0033 | 0.0043 | 0.0043 | 0.0043 | 0.0036 | 0.0030 | 0.0032 |
| 00:00 - 01:00 | 0.0031 | 0.0038 | 0.0034 | 0.0030 | 0.0038 | 0.0039 | 0.0029 |
| 01:00 - 02:00 | 0.0032 | 0.0029 | 0.0032 | 0.0038 | 0.0036 | 0.0030 | 0.0040 |
| 02:00 - 03:00 | 0.0041 | 0.0041 | 0.0041 | 0.0034 | 0.0032 | 0.0036 | 0.0031 |
| 03:00 - 04:00 | 0.0035 | 0.0032 | 0.0037 | 0.0030 | 0.0040 | 0.0038 | 0.0037 |
| 04:00 - 05:00 | 0.0039 | 0.0037 | 0.0042 | 0.0032 | 0.0030 | 0.0035 | 0.0038 |
| 05:00 - 06:00 | 0.0041 | 0.0037 | 0.0043 | 0.0033 | 0.0031 | 0.0042 | 0.0029 |
| 06:00 - 07:00 | 0.0037 | 0.0033 | 0.0039 | 0.0033 | 0.0036 | 0.0036 | 0.0037 |
| 07:00 - 08:00 | 0.0035 | 0.0030 | 0.0029 | 0.0043 | 0.0030 | 0.0033 | 0.0031 |
| 08:00 - 09:00 | 0.0037 | 0.0036 | 0.0029 | 0.0042 | 0.0037 | 0.0043 | 0.0029 |
| 09:00 - 10:00 | 0.0039 | 0.0041 | 0.0030 | 0.0042 | 0.0032 | 0.0042 | 0.0036 |
| 10:00 - 11:00 | 0.0036 | 0.0030 | 0.0043 | 0.0038 | 0.0036 | 0.0043 | 0.0031 |
| 11:00 - 12:00 | 0.0029 | 0.0037 | 0.0031 | 0.0035 | 0.0033 | 0.0030 | 0.0031 |
| 12:00 - 13:00 | 0.0039 | 0.0043 | 0.0041 | 0.0030 | 0.0032 | 0.0043 | 0.0043 |
| Average-24Hr* | 0.0036 | 0.0037 | 0.0036 | 0.0036 | 0.0035 | 0.0036 | 0.0036 |
| Max-1Hr | 0.0043 | 0.0043 | 0.0043 | 0.0043 | 0.0042 | 0.0043 | 0.0043 |
| Min-1Hr | 0.0029 | 0.0029 | 0.0029 | 0.0030 | 0.0030 | 0.0029 | 0.0029 |
| Standard-1Hr | 0.30 ppm(780 ug/cu.m) | | | | | | |
| Standard-24Hr | 0.12 ppm(300 ug/cu.m) | | | | | | |

Remark : * Average time between 13:00-13:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Sulfur dioxide MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Ban Map Ta Phut Sophonratburana School Monitor Period : 18-25 Feb 2022
Analyzer Model : Teledyne T100 Station No : 16
Serial No : 120 Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D. : EB0108319
Certified Date : 13 Jan 2022 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 12 Jan 2023

| Time | SO2 Concentration (ppm) | | | | | | |
|---------------|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 18-19 Feb 2022 | 19-20 Feb 2022 | 20-21 Feb 2022 | 21-22 Feb 2022 | 22-23 Feb 2022 | 23-24 Feb 2022 | 24-25 Feb 2022 |
| 12:00 - 13:00 | 0.0032 | 0.0052 | 0.0038 | 0.0032 | 0.0040 | 0.0030 | 0.0028 |
| 13:00 - 14:00 | 0.0034 | 0.0042 | 0.0048 | 0.0032 | 0.0035 | 0.0038 | 0.0051 |
| 14:00 - 15:00 | 0.0024 | 0.0044 | 0.0045 | 0.0041 | 0.0047 | 0.0052 | 0.0035 |
| 15:00 - 16:00 | 0.0043 | 0.0038 | 0.0036 | 0.0029 | 0.0031 | 0.0024 | 0.0051 |
| 16:00 - 17:00 | 0.0032 | 0.0023 | 0.0041 | 0.0027 | 0.0041 | 0.0027 | 0.0032 |
| 17:00 - 18:00 | 0.0035 | 0.0048 | 0.0049 | 0.0030 | 0.0028 | 0.0046 | 0.0026 |
| 18:00 - 19:00 | 0.0029 | 0.0026 | 0.0043 | 0.0042 | 0.0040 | 0.0036 | 0.0048 |
| 19:00 - 20:00 | 0.0035 | 0.0026 | 0.0049 | 0.0040 | 0.0032 | 0.0045 | 0.0030 |
| 20:00 - 21:00 | 0.0040 | 0.0037 | 0.0048 | 0.0045 | 0.0053 | 0.0046 | 0.0044 |
| 21:00 - 22:00 | 0.0044 | 0.0034 | 0.0051 | 0.0051 | 0.0040 | 0.0034 | 0.0049 |
| 22:00 - 23:00 | 0.0039 | 0.0029 | 0.0044 | 0.0037 | 0.0035 | 0.0022 | 0.0029 |
| 23:00 - 00:00 | 0.0037 | 0.0026 | 0.0026 | 0.0028 | 0.0050 | 0.0023 | 0.0033 |
| 00:00 - 01:00 | 0.0035 | 0.0035 | 0.0022 | 0.0027 | 0.0053 | 0.0053 | 0.0031 |
| 01:00 - 02:00 | 0.0033 | 0.0029 | 0.0047 | 0.0044 | 0.0033 | 0.0040 | 0.0051 |
| 02:00 - 03:00 | 0.0037 | 0.0050 | 0.0030 | 0.0050 | 0.0029 | 0.0039 | 0.0045 |
| 03:00 - 04:00 | 0.0031 | 0.0040 | 0.0037 | 0.0041 | 0.0033 | 0.0048 | 0.0039 |
| 04:00 - 05:00 | 0.0045 | 0.0043 | 0.0039 | 0.0048 | 0.0022 | 0.0048 | 0.0041 |
| 05:00 - 06:00 | 0.0032 | 0.0035 | 0.0035 | 0.0026 | 0.0027 | 0.0043 | 0.0040 |
| 06:00 - 07:00 | 0.0027 | 0.0045 | 0.0052 | 0.0032 | 0.0034 | 0.0028 | 0.0030 |
| 07:00 - 08:00 | 0.0032 | 0.0026 | 0.0038 | 0.0053 | 0.0030 | 0.0024 | 0.0028 |
| 08:00 - 09:00 | 0.0026 | 0.0023 | 0.0031 | 0.0033 | 0.0041 | 0.0037 | 0.0039 |
| 09:00 - 10:00 | 0.0033 | 0.0045 | 0.0051 | 0.0041 | 0.0026 | 0.0049 | 0.0030 |
| 10:00 - 11:00 | 0.0038 | 0.0041 | 0.0035 | 0.0022 | 0.0033 | 0.0026 | 0.0032 |
| 11:00 - 12:00 | 0.0034 | 0.0027 | 0.0031 | 0.0050 | 0.0030 | 0.0033 | 0.0033 |
| Average-24Hr* | 0.0034 | 0.0036 | 0.0040 | 0.0038 | 0.0036 | 0.0037 | 0.0037 |
| Max-1Hr | 0.0045 | 0.0052 | 0.0052 | 0.0053 | 0.0053 | 0.0053 | 0.0051 |
| Min-1Hr | 0.0024 | 0.0023 | 0.0022 | 0.0022 | 0.0022 | 0.0022 | 0.0026 |
| Standard-1Hr | 0.30 ppm(780 ug/cu.m) | | | | | | |
| Standard-24Hr | 0.12 ppm(300 ug/cu.m) | | | | | | |

Remark : * Average time between 12:00-12:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : East fence of project site Monitor Period : 18-25 Feb 2022
Analyzer Model : API 200A Station No : 17
Serial No : 074 Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D. : EB0108319
Certified Date : 13 Jan 2022 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 12 Jan 2023

| Time | NO2 Concentration (ppm) | | | | | | |
|---------------|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 18-19 Feb 2022 | 19-20 Feb 2022 | 20-21 Feb 2022 | 21-22 Feb 2022 | 22-23 Feb 2022 | 23-24 Feb 2022 | 24-25 Feb 2022 |
| 10:00 - 11:00 | 0.0088 | 0.0080 | 0.0024 | 0.0103 | 0.0043 | 0.0066 | 0.0063 |
| 11:00 - 12:00 | 0.0098 | 0.0029 | 0.0063 | 0.0067 | 0.0097 | 0.0053 | 0.0097 |
| 12:00 - 13:00 | 0.0041 | 0.0055 | 0.0075 | 0.0110 | 0.0108 | 0.0096 | 0.0060 |
| 13:00 - 14:00 | 0.0091 | 0.0110 | 0.0071 | 0.0079 | 0.0051 | 0.0077 | 0.0066 |
| 14:00 - 15:00 | 0.0035 | 0.0053 | 0.0058 | 0.0044 | 0.0053 | 0.0034 | 0.0086 |
| 15:00 - 16:00 | 0.0110 | 0.0046 | 0.0073 | 0.0108 | 0.0071 | 0.0040 | 0.0028 |
| 16:00 - 17:00 | 0.0022 | 0.0065 | 0.0063 | 0.0079 | 0.0037 | 0.0059 | 0.0104 |
| 17:00 - 18:00 | 0.0092 | 0.0101 | 0.0068 | 0.0049 | 0.0107 | 0.0063 | 0.0082 |
| 18:00 - 19:00 | 0.0057 | 0.0098 | 0.0032 | 0.0055 | 0.0097 | 0.0045 | 0.0041 |
| 19:00 - 20:00 | 0.0086 | 0.0030 | 0.0030 | 0.0069 | 0.0105 | 0.0110 | 0.0092 |
| 20:00 - 21:00 | 0.0052 | 0.0090 | 0.0026 | 0.0061 | 0.0054 | 0.0094 | 0.0089 |
| 21:00 - 22:00 | 0.0083 | 0.0096 | 0.0079 | 0.0051 | 0.0090 | 0.0093 | 0.0058 |
| 22:00 - 23:00 | 0.0037 | 0.0083 | 0.0031 | 0.0113 | 0.0043 | 0.0057 | 0.0049 |
| 23:00 - 00:00 | 0.0073 | 0.0050 | 0.0095 | 0.0097 | 0.0093 | 0.0079 | 0.0066 |
| 00:00 - 01:00 | 0.0058 | 0.0046 | 0.0041 | 0.0082 | 0.0063 | 0.0024 | 0.0045 |
| 01:00 - 02:00 | 0.0101 | 0.0036 | 0.0068 | 0.0026 | 0.0044 | 0.0030 | 0.0044 |
| 02:00 - 03:00 | 0.0077 | 0.0102 | 0.0061 | 0.0103 | 0.0059 | 0.0043 | 0.0068 |
| 03:00 - 04:00 | 0.0109 | 0.0044 | 0.0067 | 0.0106 | 0.0096 | 0.0082 | 0.0055 |
| 04:00 - 05:00 | 0.0042 | 0.0067 | 0.0035 | 0.0072 | 0.0081 | 0.0080 | 0.0104 |
| 05:00 - 06:00 | 0.0022 | 0.0049 | 0.0056 | 0.0041 | 0.0027 | 0.0083 | 0.0110 |
| 06:00 - 07:00 | 0.0040 | 0.0059 | 0.0033 | 0.0080 | 0.0083 | 0.0064 | 0.0089 |
| 07:00 - 08:00 | 0.0055 | 0.0074 | 0.0076 | 0.0108 | 0.0028 | 0.0064 | 0.0109 |
| 08:00 - 09:00 | 0.0037 | 0.0112 | 0.0109 | 0.0097 | 0.0089 | 0.0072 | 0.0088 |
| 09:00 - 10:00 | 0.0109 | 0.0075 | 0.0023 | 0.0048 | 0.0080 | 0.0102 | 0.0049 |
| Average-24Hr* | 0.0067 | 0.0069 | 0.0057 | 0.0077 | 0.0071 | 0.0067 | 0.0073 |
| Max-1Hr | 0.0110 | 0.0112 | 0.0109 | 0.0113 | 0.0108 | 0.0110 | 0.0110 |
| Min-1Hr | 0.0022 | 0.0029 | 0.0023 | 0.0026 | 0.0026 | 0.0024 | 0.0028 |
| Standard-1Hr | 0.17 ppm(320 ug/cu.m) | | | | | | |
| Standard-24Hr | - | | | | | | |

Remark : * Average time between 10:00-10:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Environmental & Occupational Medicine Service Monitor Period : 18-25 Feb 2022
Analyzer Model : API 200A Station No : 19
Serial No : 1645 Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Teledyne 700E Serial No : 587
Calibration Gas Cylinder I.D. : EB0108319
Certified Date : 13 Jan 2022 Cal Concentration (ppb) : 0,100,200,400
Expire Date : 12 Jan 2023

| Time | NO2 Concentration (ppm) | | | | | | |
|---------------|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 18-19 Feb 2022 | 19-20 Feb 2022 | 20-21 Feb 2022 | 21-22 Feb 2022 | 22-23 Feb 2022 | 23-24 Feb 2022 | 24-25 Feb 2022 |
| 12:00 - 13:00 | 0.0102 | 0.0095 | 0.0067 | 0.0111 | 0.0066 | 0.0061 | 0.0062 |
| 13:00 - 14:00 | 0.0077 | 0.0102 | 0.0108 | 0.0078 | 0.0098 | 0.0111 | 0.0066 |
| 14:00 - 15:00 | 0.0081 | 0.0105 | 0.0096 | 0.0080 | 0.0062 | 0.0069 | 0.0063 |
| 15:00 - 16:00 | 0.0076 | 0.0078 | 0.0109 | 0.0101 | 0.0099 | 0.0106 | 0.0085 |
| 16:00 - 17:00 | 0.0079 | 0.0061 | 0.0110 | 0.0060 | 0.0107 | 0.0075 | 0.0102 |
| 17:00 - 18:00 | 0.0103 | 0.0067 | 0.0072 | 0.0093 | 0.0081 | 0.0090 | 0.0061 |
| 18:00 - 19:00 | 0.0100 | 0.0074 | 0.0093 | 0.0105 | 0.0104 | 0.0088 | 0.0060 |
| 19:00 - 20:00 | 0.0070 | 0.0091 | 0.0093 | 0.0085 | 0.0068 | 0.0091 | 0.0081 |
| 20:00 - 21:00 | 0.0087 | 0.0062 | 0.0073 | 0.0082 | 0.0099 | 0.0060 | 0.0103 |
| 21:00 - 22:00 | 0.0094 | 0.0102 | 0.0070 | 0.0106 | 0.0101 | 0.0056 | 0.0090 |
| 22:00 - 23:00 | 0.0100 | 0.0101 | 0.0067 | 0.0089 | 0.0085 | 0.0087 | 0.0084 |
| 23:00 - 00:00 | 0.0067 | 0.0084 | 0.0093 | 0.0069 | 0.0078 | 0.0080 | 0.0110 |
| 00:00 - 01:00 | 0.0063 | 0.0083 | 0.0087 | 0.0094 | 0.0061 | 0.0074 | 0.0091 |
| 01:00 - 02:00 | 0.0082 | 0.0070 | 0.0067 | 0.0088 | 0.0066 | 0.0081 | 0.0103 |
| 02:00 - 03:00 | 0.0067 | 0.0075 | 0.0104 | 0.0087 | 0.0060 | 0.0080 | 0.0055 |
| 03:00 - 04:00 | 0.0091 | 0.0070 | 0.0066 | 0.0072 | 0.0102 | 0.0084 | 0.0081 |
| 04:00 - 05:00 | 0.0091 | 0.0056 | 0.0112 | 0.0056 | 0.0089 | 0.0083 | 0.0089 |
| 05:00 - 06:00 | 0.0104 | 0.0103 | 0.0088 | 0.0100 | 0.0057 | 0.0068 | 0.0099 |
| 06:00 - 07:00 | 0.0098 | 0.0075 | 0.0105 | 0.0101 | 0.0084 | 0.0084 | 0.0090 |
| 07:00 - 08:00 | 0.0107 | 0.0094 | 0.0061 | 0.0112 | 0.0070 | 0.0079 | 0.0111 |
| 08:00 - 09:00 | 0.0109 | 0.0100 | 0.0057 | 0.0085 | 0.0100 | 0.0079 | 0.0072 |
| 09:00 - 10:00 | 0.0087 | 0.0062 | 0.0077 | 0.0082 | 0.0103 | 0.0079 | 0.0093 |
| 10:00 - 11:00 | 0.0066 | 0.0104 | 0.0092 | 0.0069 | 0.0087 | 0.0102 | 0.0091 |
| 11:00 - 12:00 | 0.0106 | 0.0096 | 0.0095 | 0.0091 | 0.0088 | 0.0063 | 0.0091 |
| Average-24Hr* | 0.0088 | 0.0084 | 0.0086 | 0.0087 | 0.0084 | 0.0080 | 0.0085 |
| Max-1Hr | 0.0109 | 0.0105 | 0.0112 | 0.0112 | 0.0107 | 0.0111 | 0.0111 |
| Min-1Hr | 0.0063 | 0.0056 | 0.0057 | 0.0056 | 0.0057 | 0.0056 | 0.0055 |
| Standard-1Hr | 0.17 ppm(320 ug/cu.m) | | | | | | |
| Standard-24Hr | - | | | | | | |

Remark : * Average time between 12:00-12:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Map Ta Phut New Town
Analyzer Model : API 200A
Serial No : 1523

Monitor Period : 18-25 Feb 2022
Station No : 14
Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Teledyne 700E
Calibration Gas Cylinder I.D. : EB0108319
Certified Date : 13 Jan 2022
Expire Date : 12 Jan 2023

Serial No : 587
Cal Concentration (ppb) : 0,100,200,400

| Time | NO2 Concentration (ppm) | | | | | | |
|---------------|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 18-19 Feb 2022 | 19-20 Feb 2022 | 20-21 Feb 2022 | 21-22 Feb 2022 | 22-23 Feb 2022 | 23-24 Feb 2022 | 24-25 Feb 2022 |
| 13:00 - 14:00 | 0.0058 | 0.0066 | 0.0062 | 0.0050 | 0.0057 | 0.0068 | 0.0059 |
| 14:00 - 15:00 | 0.0082 | 0.0053 | 0.0080 | 0.0064 | 0.0069 | 0.0073 | 0.0047 |
| 15:00 - 16:00 | 0.0079 | 0.0077 | 0.0063 | 0.0060 | 0.0067 | 0.0063 | 0.0062 |
| 16:00 - 17:00 | 0.0056 | 0.0073 | 0.0056 | 0.0057 | 0.0067 | 0.0052 | 0.0057 |
| 17:00 - 18:00 | 0.0060 | 0.0052 | 0.0059 | 0.0061 | 0.0065 | 0.0074 | 0.0064 |
| 18:00 - 19:00 | 0.0057 | 0.0080 | 0.0067 | 0.0066 | 0.0066 | 0.0068 | 0.0078 |
| 19:00 - 20:00 | 0.0053 | 0.0059 | 0.0054 | 0.0048 | 0.0048 | 0.0064 | 0.0074 |
| 20:00 - 21:00 | 0.0068 | 0.0073 | 0.0078 | 0.0067 | 0.0071 | 0.0070 | 0.0053 |
| 21:00 - 22:00 | 0.0065 | 0.0057 | 0.0061 | 0.0062 | 0.0072 | 0.0057 | 0.0075 |
| 22:00 - 23:00 | 0.0058 | 0.0056 | 0.0060 | 0.0063 | 0.0054 | 0.0064 | 0.0072 |
| 23:00 - 00:00 | 0.0053 | 0.0068 | 0.0056 | 0.0073 | 0.0071 | 0.0051 | 0.0052 |
| 00:00 - 01:00 | 0.0058 | 0.0079 | 0.0071 | 0.0065 | 0.0058 | 0.0060 | 0.0064 |
| 01:00 - 02:00 | 0.0056 | 0.0054 | 0.0072 | 0.0059 | 0.0069 | 0.0057 | 0.0076 |
| 02:00 - 03:00 | 0.0069 | 0.0058 | 0.0069 | 0.0061 | 0.0062 | 0.0070 | 0.0049 |
| 03:00 - 04:00 | 0.0052 | 0.0074 | 0.0069 | 0.0062 | 0.0055 | 0.0055 | 0.0057 |
| 04:00 - 05:00 | 0.0073 | 0.0070 | 0.0058 | 0.0067 | 0.0070 | 0.0063 | 0.0071 |
| 05:00 - 06:00 | 0.0070 | 0.0056 | 0.0075 | 0.0071 | 0.0061 | 0.0064 | 0.0059 |
| 06:00 - 07:00 | 0.0068 | 0.0055 | 0.0068 | 0.0078 | 0.0056 | 0.0063 | 0.0064 |
| 07:00 - 08:00 | 0.0078 | 0.0080 | 0.0067 | 0.0046 | 0.0072 | 0.0068 | 0.0068 |
| 08:00 - 09:00 | 0.0066 | 0.0072 | 0.0060 | 0.0070 | 0.0064 | 0.0052 | 0.0075 |
| 09:00 - 10:00 | 0.0078 | 0.0062 | 0.0059 | 0.0072 | 0.0065 | 0.0079 | 0.0055 |
| 10:00 - 11:00 | 0.0065 | 0.0078 | 0.0056 | 0.0056 | 0.0073 | 0.0070 | 0.0064 |
| 11:00 - 12:00 | 0.0071 | 0.0070 | 0.0077 | 0.0064 | 0.0063 | 0.0056 | 0.0054 |
| 12:00 - 13:00 | 0.0074 | 0.0072 | 0.0069 | 0.0070 | 0.0072 | 0.0066 | 0.0075 |
| Average-24Hr* | 0.0065 | 0.0066 | 0.0065 | 0.0063 | 0.0064 | 0.0064 | 0.0064 |
| Max-1Hr | 0.0082 | 0.0080 | 0.0080 | 0.0078 | 0.0073 | 0.0079 | 0.0078 |
| Min-1Hr | 0.0052 | 0.0052 | 0.0054 | 0.0046 | 0.0048 | 0.0051 | 0.0047 |
| Standard-1Hr | 0.17 ppm(320 ug/cu.m) | | | | | | |
| Standard-24Hr | | | | | | | |

Remark : * Average time between 13:00-13:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Ambient Air Monitoring Results : Nitrogen dioxide MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Ban Map Ta Phut Sophonratburana School
Analyzer Model : Teledyne T200
Serial No : 110

Monitor Period : 18-25 Feb 2022
Station No : 16
Site Operator : Mr. Sittichai Sawangwongchai

Calibrator Model : Teledyne 700E
Calibration Gas Cylinder I.D. : EB0108319
Certified Date : 13 Jan 2022
Expire Date : 12 Jan 2023

Serial No : 587
Cal Concentration (ppb) : 0,100,200,400

| Time | NO2 Concentration (ppm) | | | | | | |
|---------------|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 18-19 Feb 2022 | 19-20 Feb 2022 | 20-21 Feb 2022 | 21-22 Feb 2022 | 22-23 Feb 2022 | 23-24 Feb 2022 | 24-25 Feb 2022 |
| 12:00 - 13:00 | 0.0086 | 0.0074 | 0.0080 | 0.0084 | 0.0071 | 0.0069 | 0.0069 |
| 13:00 - 14:00 | 0.0102 | 0.0093 | 0.0075 | 0.0065 | 0.0051 | 0.0075 | 0.0053 |
| 14:00 - 15:00 | 0.0075 | 0.0078 | 0.0080 | 0.0104 | 0.0102 | 0.0089 | 0.0057 |
| 15:00 - 16:00 | 0.0067 | 0.0067 | 0.0100 | 0.0081 | 0.0061 | 0.0101 | 0.0090 |
| 16:00 - 17:00 | 0.0097 | 0.0080 | 0.0095 | 0.0088 | 0.0093 | 0.0080 | 0.0089 |
| 17:00 - 18:00 | 0.0104 | 0.0070 | 0.0099 | 0.0088 | 0.0080 | 0.0077 | 0.0078 |
| 18:00 - 19:00 | 0.0074 | 0.0057 | 0.0072 | 0.0056 | 0.0097 | 0.0102 | 0.0066 |
| 19:00 - 20:00 | 0.0085 | 0.0070 | 0.0091 | 0.0102 | 0.0058 | 0.0088 | 0.0087 |
| 20:00 - 21:00 | 0.0100 | 0.0059 | 0.0108 | 0.0100 | 0.0066 | 0.0079 | 0.0051 |
| 21:00 - 22:00 | 0.0072 | 0.0099 | 0.0087 | 0.0076 | 0.0067 | 0.0063 | 0.0087 |
| 22:00 - 23:00 | 0.0057 | 0.0065 | 0.0064 | 0.0061 | 0.0060 | 0.0085 | 0.0079 |
| 23:00 - 00:00 | 0.0053 | 0.0073 | 0.0062 | 0.0101 | 0.0092 | 0.0064 | 0.0079 |
| 00:00 - 01:00 | 0.0095 | 0.0057 | 0.0075 | 0.0082 | 0.0086 | 0.0072 | 0.0078 |
| 01:00 - 02:00 | 0.0072 | 0.0058 | 0.0051 | 0.0081 | 0.0070 | 0.0091 | 0.0072 |
| 02:00 - 03:00 | 0.0100 | 0.0073 | 0.0092 | 0.0076 | 0.0082 | 0.0084 | 0.0068 |
| 03:00 - 04:00 | 0.0064 | 0.0092 | 0.0087 | 0.0087 | 0.0108 | 0.0099 | 0.0066 |
| 04:00 - 05:00 | 0.0058 | 0.0092 | 0.0078 | 0.0079 | 0.0069 | 0.0058 | 0.0072 |
| 05:00 - 06:00 | 0.0082 | 0.0107 | 0.0065 | 0.0070 | 0.0105 | 0.0081 | 0.0085 |
| 06:00 - 07:00 | 0.0076 | 0.0072 | 0.0086 | 0.0069 | 0.0084 | 0.0093 | 0.0061 |
| 07:00 - 08:00 | 0.0067 | 0.0080 | 0.0070 | 0.0083 | 0.0080 | 0.0062 | 0.0060 |
| 08:00 - 09:00 | 0.0071 | 0.0078 | 0.0088 | 0.0067 | 0.0063 | 0.0101 | 0.0087 |
| 09:00 - 10:00 | 0.0100 | 0.0093 | 0.0073 | 0.0097 | 0.0089 | 0.0081 | 0.0059 |
| 10:00 - 11:00 | 0.0087 | 0.0061 | 0.0049 | 0.0072 | 0.0086 | 0.0076 | 0.0067 |
| 11:00 - 12:00 | 0.0058 | 0.0053 | 0.0075 | 0.0077 | 0.0072 | 0.0076 | 0.0051 |
| Average-24Hr* | 0.0079 | 0.0075 | 0.0079 | 0.0081 | 0.0079 | 0.0080 | 0.0071 |
| Max-1Hr | 0.0104 | 0.0107 | 0.0108 | 0.0104 | 0.0108 | 0.0102 | 0.0090 |
| Min-1Hr | 0.0053 | 0.0053 | 0.0049 | 0.0056 | 0.0051 | 0.0058 | 0.0051 |
| Standard-1Hr | 0.17 ppm(320 ug/cu.m) | | | | | | |
| Standard-24Hr | | | | | | | |

Remark : * Average time between 12:00-12:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

ภาคผนวก ง.2

ใบรับรองผลการตรวจวัดและวิเคราะห์
คุณภาพอากาศจากปล่องระบายอากาศ



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิมลคตประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

| | | | |
|--------------------|--------------------------------|------------------|-------------------------------|
| CLIENT NAME | : Glow Energy Public Co., Ltd. | REFERENCE NO. | : 222048 Stk (Cert.)/1A (Feb) |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING DATE | : 21/02/2022 |
| RECEIVED DATE | : 25/02/2022 | ANALYTICAL DATE | : 25-28/02/2022 |
| REPORT DATE | : 04/03/2022 | SAMPLE CONDITION | : Normal |
| STACK LOCATION | : HRSG 1A | SITE OPERATOR | : Mr. Song Hangchwankun |
| SOURCE DESCRIPTION | : Combustion | FUEL TYPE | : Natural Gas |

STATION DESCRIPTION

| | | | |
|-------------|------------|-------------------------|-------------------|
| Height | : 35.0 m | Gas Velocity | : 18.9 m/s |
| Diameter | : 3.25 m | Flow Rate ^{1/} | : 6,021 Ncu.m/min |
| Temperature | : 138.9 °C | Oxygen Content | : 14.3 % |

| PARAMETER | UNIT | RESULTS ^{1/} | | STANDARD ^{2/} | REFERENCE METHOD |
|--------------------|-----------|-----------------------|-------------------|------------------------|-------------------|
| | | 14.3% O ₂ | 7% O ₂ | 7% O ₂ | |
| Particulate matter | mg/Ncu.m. | 0.9 | 1.8 | 60 | U.S. EPA Method 5 |

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO. 2-239-ก-8183

Narisa Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 2-239-ก-6419

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ^{1/} At standard pressure of 760 mm.Hg and temperature of 25 °C, dry basis.

4. ^{2/} Notification of Ministry of Industry, B.E.2547 @ 7%O₂.

The Monitoring Result of Emission Concentration

HRSG 1A

Glow Energy Co., Ltd.

February 21, 2022

| Run Number | Oxygen content (%) | | Oxide of Nitrogen (ppm) | | |
|------------|--------------------|--------------------|-------------------------|---|---------------------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O ₂ | Corrected Gas Conc @7% O ₂ |
| 1 | 14.29 | 14.25 | 37.81 | 37.81 | 79.03 |
| 2 | 14.40 | 14.38 | 35.05 | 35.04 | 74.70 |
| 3 | 14.40 | 14.39 | 33.70 | 33.69 | 71.93 |
| Average | 14.36 | 14.34 | 35.52 | 35.51 | 75.25 |

| Run Number | Oxygen content (%) | | Sulfur dioxide (ppm) | | |
|------------|--------------------|--------------------|----------------------|---|---------------------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O ₂ | Corrected Gas Conc @7% O ₂ |
| 1 | 14.29 | 14.25 | 0.88 | 0.82 | 1.71 |
| 2 | 14.40 | 14.38 | 0.85 | 0.80 | 1.71 |
| 3 | 14.40 | 14.39 | 0.84 | 0.80 | 1.71 |
| Average | 14.36 | 14.34 | 0.86 | 0.81 | 1.71 |

| Run Number | Oxygen content (%) | | Carbonmonoxide (ppm) | | |
|------------|--------------------|--------------------|----------------------|---|---------------------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O ₂ | Corrected Gas Conc @7% O ₂ |
| 1 | 14.29 | 14.25 | 12.30 | 12.27 | 25.65 |
| 2 | 14.40 | 14.38 | 16.31 | 16.29 | 34.73 |
| 3 | 14.40 | 14.39 | 17.15 | 17.13 | 36.58 |
| Average | 14.36 | 14.34 | 15.25 | 15.23 | 32.27 |

Glow Energy Co., Ltd. EMISSION TEST RESULT

| | |
|---|--|
| Date: <u>February 21, 2022</u> Start time: <u>2:00 PM</u> O₂ instrument Model: <u>AMI 70</u> NO_x instrument Model: <u>API 200 AH</u> SO₂ instrument Model: <u>API 100 AH</u> CO instrument Model: <u>API 300 A</u> Fuel Type : <u>Natural Gas</u> | Run # : <u>1</u> Location : <u>HRSG 1A</u> Finish time : <u>2:20 PM</u> Serial No.: <u>161212-14</u> Serial No.: <u>441</u> Serial No.: <u>132</u> Serial No.: <u>1343</u> Test Operator : <u>Song H.</u> |
|---|--|

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|-----------|--------------------|-----------------------|-----------------------|----------|
| 2:00 PM | 14.40 | 34.14 | 0.87 | 17.37 |
| 2:01 PM | 14.40 | 35.75 | 0.83 | 16.88 |
| 2:02 PM | 14.40 | 35.06 | 0.85 | 16.74 |
| 2:03 PM | 14.40 | 34.88 | 0.80 | 16.51 |
| 2:04 PM | 14.40 | 34.40 | 0.79 | 16.53 |
| 2:05 PM | 14.30 | 35.74 | 0.84 | 16.44 |
| 2:06 PM | 14.30 | 37.64 | 0.88 | 12.70 |
| 2:07 PM | 14.20 | 39.45 | 0.92 | 9.96 |
| 2:08 PM | 14.20 | 39.14 | 0.90 | 9.70 |
| 2:09 PM | 14.20 | 39.49 | 0.89 | 9.59 |
| 2:10 PM | 14.10 | 39.64 | 0.93 | 9.44 |
| 2:11 PM | 14.10 | 39.98 | 0.91 | 9.30 |
| 2:12 PM | 14.20 | 39.17 | 0.91 | 9.17 |
| 2:13 PM | 14.20 | 39.66 | 0.91 | 9.13 |
| 2:14 PM | 14.20 | 40.33 | 0.93 | 9.18 |
| 2:15 PM | 14.30 | 40.20 | 0.90 | 9.32 |
| 2:16 PM | 14.40 | 39.48 | 0.91 | 9.76 |
| 2:17 PM | 14.40 | 38.42 | 0.89 | 10.61 |
| 2:18 PM | 14.30 | 38.16 | 0.89 | 11.47 |
| 2:19 PM | 14.30 | 37.24 | 0.86 | 13.66 |
| 2:20 PM | 14.40 | 35.96 | 0.86 | 14.76 |
| Average | 14.29 | 37.81 | 0.88 | 12.30 |

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

Glow Energy Co., Ltd. EMISSION TEST RESULT

| | |
|---|--|
| Date: <u>February 21, 2022</u> Start time: <u>2:21 PM</u> O₂ instrument Model: <u>AMI 70</u> NO_x instrument Model: <u>API 200 AH</u> SO₂ instrument Model: <u>API 100 AH</u> CO instrument Model: <u>API 300 A</u> Fuel Type : <u>Natural Gas</u> | Run # : <u>2</u> Location : <u>HRSG 1A</u> Finish time : <u>2:41 PM</u> Serial No.: <u>161212-14</u> Serial No.: <u>441</u> Serial No.: <u>132</u> Serial No.: <u>1343</u> Test Operator : <u>Song H.</u> |
|---|--|

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|-----------|--------------------|-----------------------|-----------------------|----------|
| 2:21 PM | 14.30 | 36.48 | 0.82 | 15.47 |
| 2:22 PM | 14.40 | 35.87 | 0.85 | 15.59 |
| 2:23 PM | 14.40 | 36.11 | 0.87 | 15.51 |
| 2:24 PM | 14.40 | 36.38 | 0.87 | 15.49 |
| 2:25 PM | 14.40 | 35.37 | 0.84 | 15.59 |
| 2:26 PM | 14.40 | 35.34 | 0.86 | 15.63 |
| 2:27 PM | 14.40 | 34.87 | 0.87 | 16.04 |
| 2:28 PM | 14.40 | 35.48 | 0.87 | 16.38 |
| 2:29 PM | 14.40 | 35.73 | 0.83 | 16.57 |
| 2:30 PM | 14.40 | 35.00 | 0.86 | 16.81 |
| 2:31 PM | 14.40 | 35.81 | 0.86 | 16.61 |
| 2:32 PM | 14.40 | 35.34 | 0.81 | 16.45 |
| 2:33 PM | 14.40 | 34.87 | 0.82 | 16.30 |
| 2:34 PM | 14.40 | 34.12 | 0.85 | 16.20 |
| 2:35 PM | 14.40 | 34.57 | 0.87 | 16.45 |
| 2:36 PM | 14.40 | 34.59 | 0.83 | 16.80 |
| 2:37 PM | 14.40 | 33.77 | 0.81 | 16.99 |
| 2:38 PM | 14.40 | 33.71 | 0.86 | 17.04 |
| 2:39 PM | 14.40 | 34.37 | 0.83 | 16.99 |
| 2:40 PM | 14.40 | 34.42 | 0.85 | 16.80 |
| 2:41 PM | 14.40 | 33.86 | 0.84 | 16.81 |
| Average | 14.40 | 35.05 | 0.85 | 16.31 |

Signature 
 (Miss Katesarin Vorradetwittaya)
 Environmental Scientist

Glow Energy Co., Ltd. EMISSION TEST RESULT

| | |
|--|--|
| Date: February 21, 2022 Start time: 2:42 PM O₂ instrument Model: AMI 70 NO_x instrument Model: API 200 AH SO₂ instrument Model: API 100 AH CO instrument Model: API 300 A Fuel Type : Natural Gas | Run # : 3 Location : HRSG 1A Finish time : 3:02 PM Serial No.: 161212-14 Serial No.: 441 Serial No.: 132 Serial No.: 1343 Test Operator : Song H. |
|--|--|

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|----------------|--------------------|-----------------------|-----------------------|----------|
| 2:42 PM | 14.40 | 33.81 | 0.84 | 16.96 |
| 2:43 PM | 14.40 | 33.89 | 0.85 | 17.11 |
| 2:44 PM | 14.40 | 33.48 | 0.82 | 17.24 |
| 2:45 PM | 14.40 | 33.15 | 0.84 | 17.30 |
| 2:46 PM | 14.40 | 33.95 | 0.82 | 17.20 |
| 2:47 PM | 14.40 | 33.80 | 0.83 | 17.07 |
| 2:48 PM | 14.50 | 33.19 | 0.81 | 17.10 |
| 2:49 PM | 14.40 | 33.22 | 0.81 | 17.23 |
| 2:50 PM | 14.40 | 34.05 | 0.86 | 17.29 |
| 2:51 PM | 14.50 | 33.77 | 0.81 | 17.26 |
| 2:52 PM | 14.40 | 33.45 | 0.82 | 17.25 |
| 2:53 PM | 14.40 | 34.01 | 0.87 | 17.15 |
| 2:54 PM | 14.40 | 33.84 | 0.87 | 17.11 |
| 2:55 PM | 14.40 | 33.81 | 0.81 | 17.08 |
| 2:56 PM | 14.40 | 33.62 | 0.83 | 16.98 |
| 2:57 PM | 14.30 | 34.21 | 0.85 | 16.98 |
| 2:58 PM | 14.40 | 33.80 | 0.84 | 17.02 |
| 2:59 PM | 14.40 | 33.11 | 0.84 | 17.20 |
| 3:00 PM | 14.40 | 34.23 | 0.87 | 17.29 |
| 3:01 PM | 14.40 | 33.86 | 0.87 | 17.21 |
| 3:02 PM | 14.40 | 33.37 | 0.87 | 17.02 |
| Average | 14.40 | 33.70 | 0.84 | 17.15 |

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

| | | | |
|---------------------------|--------------------------------|-------------------------|-------------------------------|
| CLIENT NAME | : Glow Energy Public Co., Ltd. | REFERENCE NO. | : 222048 Stk (Cert.)/1B (Feb) |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING DATE | : 21/02/2022 |
| RECEIVED DATE | : 25/02/2022 | ANALYTICAL DATE | : 25-28/02/2022 |
| REPORT DATE | : 04/03/2022 | SAMPLE CONDITION | : Normal |
| STACK LOCATION | : HRSG 1B | SITE OPERATOR | : Mr. Song Hanghchwankun |
| SOURCE DESCRIPTION | : Combustion | FUEL TYPE | : Natural Gas |

STATION DESCRIPTION

| | | | | | |
|--------------------|---------|----|--------------------------------|---------|-----------|
| Height | : 35.0 | m | Gas Velocity | : 18.9 | m/s |
| Diameter | : 3.25 | m | Flow Rate ^{1/} | : 6,076 | Ncu.m/min |
| Temperature | : 136.4 | °C | Oxygen Content | : 14.6 | % |

| PARAMETER | UNIT | RESULTS ^{1/} | | STANDARD ^{2/} | REFERENCE |
|--------------------|----------|-----------------------|-------------------|------------------------|-------------------|
| | | 14.6% O ₂ | 7% O ₂ | 7% O ₂ | |
| Particulate matter | mg/Ncu.m | 1.2 | 2.7 | 60 | U.S. EPA Method 5 |

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO. 3-239-ก-8183

Narin Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 3-239-ก-6419

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ^{1/} At standard pressure of 760 mm.Hg and temperature of 25 °C, dry basis.

4. ^{2/} Notification of Ministry of Industry, B.E.2547 @ 7%O₂.

The Monitoring Result of Emission Concentration
HRSG 1B
Glow Energy Co., Ltd.
February 21, 2022

| Run Number | Oxygen content (%) | | Oxide of Nitrogen (ppm) | | |
|----------------|--------------------|--------------------|-------------------------|-------------------------------|---------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O2 | Corrected Gas Conc @7% O2 |
| 1 | 14.67 | 14.66 | 33.25 | 33.24 | 74.04 |
| 2 | 14.64 | 14.60 | 33.51 | 33.50 | 73.91 |
| 3 | 14.59 | 14.52 | 32.54 | 32.53 | 70.87 |
| Average | 14.63 | 14.59 | 33.10 | 33.09 | 72.93 |

| Run Number | Oxygen content (%) | | Sulfur dioxide (ppm) | | |
|----------------|--------------------|--------------------|----------------------|-------------------------------|---------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O2 | Corrected Gas Conc @7% O2 |
| 1 | 14.67 | 14.66 | 0.90 | 0.86 | 1.92 |
| 2 | 14.64 | 14.60 | 0.90 | 0.85 | 1.88 |
| 3 | 14.59 | 14.52 | 0.88 | 0.82 | 1.79 |
| Average | 14.63 | 14.59 | 0.89 | 0.84 | 1.86 |

| Run Number | Oxygen content (%) | | Carbonmonoxide (ppm) | | |
|----------------|--------------------|--------------------|----------------------|-------------------------------|---------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O2 | Corrected Gas Conc @7% O2 |
| 1 | 14.67 | 14.66 | 1.80 | 1.76 | 3.92 |
| 2 | 14.64 | 14.60 | 1.76 | 1.73 | 3.82 |
| 3 | 14.59 | 14.52 | 1.92 | 1.89 | 4.12 |
| Average | 14.63 | 14.59 | 1.83 | 1.79 | 3.95 |

Glow Energy Co., Ltd.
EMISSION TEST RESULT

Date: February 21, 2022
 Start time: 4:00 PM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 100 AH
 CO instrument Model: API 300 A
 Fuel Type : Natural Gas

Run # : 1
 Location : HRSG 1B
 Finish time : 4:20 PM
 Serial No.: 161212-14
 Serial No.: 441
 Serial No.: 132
 Serial No.: 1343
 Test Operator : Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|----------------|--------------------|-----------------------|-----------------------|-------------|
| 4:00 PM | 14.60 | 32.55 | 0.83 | 1.90 |
| 4:01 PM | 14.60 | 32.46 | 0.84 | 1.93 |
| 4:02 PM | 14.60 | 32.94 | 0.85 | 1.90 |
| 4:03 PM | 14.60 | 33.09 | 0.87 | 1.90 |
| 4:04 PM | 14.60 | 32.83 | 0.88 | 1.89 |
| 4:05 PM | 14.60 | 33.32 | 0.91 | 1.84 |
| 4:06 PM | 14.70 | 33.70 | 0.89 | 1.79 |
| 4:07 PM | 14.70 | 33.61 | 0.89 | 1.78 |
| 4:08 PM | 14.70 | 33.47 | 0.89 | 1.74 |
| 4:09 PM | 14.70 | 33.52 | 0.91 | 1.73 |
| 4:10 PM | 14.60 | 33.43 | 0.92 | 1.73 |
| 4:11 PM | 14.70 | 33.63 | 0.88 | 1.73 |
| 4:12 PM | 14.70 | 33.57 | 0.88 | 1.73 |
| 4:13 PM | 14.70 | 33.17 | 0.88 | 1.75 |
| 4:14 PM | 14.70 | 33.04 | 0.92 | 1.78 |
| 4:15 PM | 14.70 | 33.25 | 0.94 | 1.78 |
| 4:16 PM | 14.70 | 33.20 | 0.92 | 1.78 |
| 4:17 PM | 14.70 | 33.07 | 0.93 | 1.79 |
| 4:18 PM | 14.70 | 33.19 | 0.96 | 1.79 |
| 4:19 PM | 14.70 | 33.31 | 0.92 | 1.79 |
| 4:20 PM | 14.70 | 33.92 | 0.92 | 1.77 |
| Average | 14.67 | 33.25 | 0.90 | 1.80 |

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

Glow Energy Co., Ltd. EMISSION TEST RESULT

Date: February 21, 2022
Start time: 4:21 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
CO instrument Model: API 300 A
Fuel Type : Natural Gas

Run # : 2
Location : HRSG 1B
Finish time : 4:41 PM
Serial No.: 161212-14
Serial No.: 441
Serial No.: 132
Serial No.: 1343
Test Operator : Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|-----------|--------------------|-----------------------|-----------------------|----------|
| 4:21 PM | 14.70 | 34.12 | 0.91 | 1.73 |
| 4:22 PM | 14.70 | 33.74 | 0.94 | 1.72 |
| 4:23 PM | 14.70 | 33.82 | 0.92 | 1.67 |
| 4:24 PM | 14.70 | 33.72 | 0.89 | 1.70 |
| 4:25 PM | 14.70 | 33.76 | 0.91 | 1.71 |
| 4:26 PM | 14.70 | 34.12 | 0.93 | 1.69 |
| 4:27 PM | 14.60 | 33.97 | 0.94 | 1.73 |
| 4:28 PM | 14.70 | 34.02 | 0.92 | 1.70 |
| 4:29 PM | 14.70 | 34.08 | 0.92 | 1.68 |
| 4:30 PM | 14.60 | 33.67 | 0.89 | 1.73 |
| 4:31 PM | 14.60 | 33.49 | 0.89 | 1.73 |
| 4:32 PM | 14.60 | 33.41 | 0.90 | 1.75 |
| 4:33 PM | 14.60 | 33.25 | 0.88 | 1.78 |
| 4:34 PM | 14.60 | 33.24 | 0.89 | 1.81 |
| 4:35 PM | 14.60 | 33.45 | 0.90 | 1.85 |
| 4:36 PM | 14.60 | 33.22 | 0.88 | 1.84 |
| 4:37 PM | 14.60 | 33.09 | 0.88 | 1.81 |
| 4:38 PM | 14.60 | 32.93 | 0.88 | 1.83 |
| 4:39 PM | 14.60 | 32.89 | 0.88 | 1.84 |
| 4:40 PM | 14.60 | 32.99 | 0.88 | 1.84 |
| 4:41 PM | 14.60 | 32.81 | 0.88 | 1.84 |
| Average | 14.64 | 33.51 | 0.90 | 1.76 |

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

Glow Energy Co., Ltd. EMISSION TEST RESULT

Date: February 21, 2022
Start time: 4:42 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
CO instrument Model: API 300 A
Fuel Type : Natural Gas

Run # : 3
Location : HRSG 1B
Finish time : 5:02 PM
Serial No.: 161212-14
Serial No.: 441
Serial No.: 132
Serial No.: 1343
Test Operator : Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|-----------|--------------------|-----------------------|-----------------------|----------|
| 4:42 PM | 14.60 | 33.06 | 0.88 | 1.84 |
| 4:43 PM | 14.60 | 32.71 | 0.86 | 1.84 |
| 4:44 PM | 14.60 | 32.62 | 0.86 | 1.88 |
| 4:45 PM | 14.60 | 32.67 | 0.92 | 1.90 |
| 4:46 PM | 14.60 | 32.30 | 0.93 | 1.93 |
| 4:47 PM | 14.60 | 32.53 | 0.88 | 1.96 |
| 4:48 PM | 14.60 | 32.94 | 0.88 | 1.92 |
| 4:49 PM | 14.60 | 32.65 | 0.83 | 1.92 |
| 4:50 PM | 14.60 | 32.62 | 0.88 | 1.90 |
| 4:51 PM | 14.50 | 32.72 | 0.88 | 1.90 |
| 4:52 PM | 14.60 | 32.74 | 0.89 | 1.90 |
| 4:53 PM | 14.50 | 32.40 | 0.90 | 1.90 |
| 4:54 PM | 14.60 | 32.59 | 0.88 | 1.90 |
| 4:55 PM | 14.60 | 32.76 | 0.87 | 1.93 |
| 4:56 PM | 14.60 | 32.20 | 0.88 | 1.96 |
| 4:57 PM | 14.60 | 32.15 | 0.88 | 1.96 |
| 4:58 PM | 14.50 | 32.07 | 0.88 | 1.96 |
| 4:59 PM | 14.60 | 32.45 | 0.88 | 1.96 |
| 5:00 PM | 14.60 | 32.38 | 0.88 | 1.96 |
| 5:01 PM | 14.60 | 32.39 | 0.88 | 1.96 |
| 5:02 PM | 14.60 | 32.44 | 0.83 | 1.97 |
| Average | 14.59 | 32.54 | 0.88 | 1.92 |

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

| | | | |
|--------------------|--------------------------------|------------------|-------------------------------|
| CLIENT NAME | : Glow Energy Public Co., Ltd. | REFERENCE NO. | : 222048 Stk (Cert.)/1C (Feb) |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING DATE | : 22/02/2022 |
| RECEIVED DATE | : 25/02/2022 | ANALYTICAL DATE | : 25-28/02/2022 |
| REPORT DATE | : 04/03/2022 | SAMPLE CONDITION | : Normal |
| STACK LOCATION | : HRSG 1C | SITE OPERATOR | : Mr. Song Hangchwankun |
| SOURCE DESCRIPTION | : Combustion | FUEL TYPE | : Natural Gas |

STATION DESCRIPTION

| | | | |
|-------------|------------|-------------------------|-------------------|
| Height | : 35.0 m | Gas Velocity | : 17.3 m/s |
| Diameter | : 3.25 m | Flow Rate ^{1/} | : 5,595 Ncu.m/min |
| Temperature | : 135.5 °C | Oxygen Content | : 14.8 % |

| PARAMETER | UNIT | RESULTS ^{1/} | | STANDARD ^{2/} | REFERENCE |
|--------------------|-----------|-----------------------|-------------------|------------------------|-------------------|
| | | 14.8% O ₂ | 7% O ₂ | 7% O ₂ | |
| | | | | | METHOD |
| Particulate matter | mg/Ncu.m. | 1.7 | 4.0 | 60 | U.S. EPA Method 5 |

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO. 2-239-ก-8183

Naris Poowasanetch

(Miss Narisa Poowasanetch)

Technical Management Team

REG.NO. 2-239-ก-6419

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ^{1/} At standard pressure of 760 mm.Hg and temperature of 25 °C, dry basis.

4. ^{2/} Notification of Ministry of Industry, B.E.2547 @ 7%O₂.

The Monitoring Result of Emission Concentration

HRSG 1C

Glow Energy Co., Ltd.

February 22, 2022

| Run Number | Oxygen content (%) | | Oxide of Nitrogen (ppm) | | |
|------------|--------------------|--------------------|-------------------------|---|---------------------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O ₂ | Corrected Gas Conc @7% O ₂ |
| 1 | 14.79 | 14.78 | 30.74 | 30.73 | 69.80 |
| 2 | 14.80 | 14.80 | 30.42 | 30.41 | 69.29 |
| 3 | 14.79 | 14.80 | 30.20 | 30.19 | 68.79 |
| Average | 14.79 | 14.79 | 30.45 | 30.44 | 69.30 |

| Run Number | Oxygen content (%) | | Sulfur dioxide (ppm) | | |
|------------|--------------------|--------------------|----------------------|---|---------------------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O ₂ | Corrected Gas Conc @7% O ₂ |
| 1 | 14.79 | 14.78 | 0.32 | 0.26 | 0.59 |
| 2 | 14.80 | 14.80 | 0.35 | 0.30 | 0.68 |
| 3 | 14.79 | 14.80 | 0.35 | 0.31 | 0.71 |
| Average | 14.79 | 14.79 | 0.34 | 0.29 | 0.66 |

| Run Number | Oxygen content (%) | | Carbonmonoxide (ppm) | | |
|------------|--------------------|--------------------|----------------------|---|---------------------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O ₂ | Corrected Gas Conc @7% O ₂ |
| 1 | 14.79 | 14.78 | 3.23 | 3.20 | 7.27 |
| 2 | 14.80 | 14.80 | 3.26 | 3.23 | 7.36 |
| 3 | 14.79 | 14.80 | 3.29 | 3.25 | 7.41 |
| Average | 14.79 | 14.79 | 3.26 | 3.23 | 7.34 |

Glow Energy Co., Ltd.
EMISSION TEST RESULT

Date: February 22, 2022
Start time: 11:20 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
CO instrument Model: API 300 A
Fuel Type : Natural Gas

Run # : 1
Location : HRSG 1C
Finish time : 11:40 AM
Serial No.: 161212-14
Serial No.: 314
Serial No.: 132
Serial No.: 1070
Test Operator : Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|----------------|--------------------|-----------------------|-----------------------|----------|
| 11:20 AM | 14.80 | 31.54 | 0.34 | 3.06 |
| 11:21 AM | 14.80 | 31.05 | 0.34 | 3.13 |
| 11:22 AM | 14.80 | 31.04 | 0.32 | 3.15 |
| 11:23 AM | 14.80 | 31.00 | 0.34 | 3.19 |
| 11:24 AM | 14.80 | 31.28 | 0.32 | 3.15 |
| 11:25 AM | 14.80 | 30.80 | 0.31 | 3.15 |
| 11:26 AM | 14.80 | 30.06 | 0.30 | 3.18 |
| 11:27 AM | 14.80 | 29.98 | 0.29 | 3.26 |
| 11:28 AM | 14.70 | 30.44 | 0.31 | 3.36 |
| 11:29 AM | 14.80 | 30.60 | 0.34 | 3.38 |
| 11:30 AM | 14.80 | 30.34 | 0.35 | 3.32 |
| 11:31 AM | 14.80 | 30.87 | 0.35 | 3.26 |
| 11:32 AM | 14.70 | 30.48 | 0.32 | 3.26 |
| 11:33 AM | 14.80 | 30.57 | 0.33 | 3.26 |
| 11:34 AM | 14.80 | 30.57 | 0.34 | 3.29 |
| 11:35 AM | 14.80 | 30.11 | 0.29 | 3.38 |
| 11:36 AM | 14.70 | 30.40 | 0.29 | 3.38 |
| 11:37 AM | 14.80 | 31.02 | 0.31 | 3.31 |
| 11:38 AM | 14.80 | 31.01 | 0.31 | 3.25 |
| 11:39 AM | 14.80 | 31.24 | 0.34 | 3.14 |
| 11:40 AM | 14.80 | 31.22 | 0.35 | 3.05 |
| Average | 14.79 | 30.74 | 0.32 | 3.23 |

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

Glow Energy Co., Ltd.
EMISSION TEST RESULT

Date: February 22, 2022
Start time: 11:41 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
CO instrument Model: API 300 A
Fuel Type : Natural Gas

Run # : 2
Location : HRSG 1C
Finish time : 12:01 PM
Serial No.: 161212-14
Serial No.: 314
Serial No.: 132
Serial No.: 1070
Test Operator : Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|----------------|--------------------|-----------------------|-----------------------|----------|
| 11:41 AM | 14.80 | 31.08 | 0.32 | 3.05 |
| 11:42 AM | 14.80 | 30.97 | 0.35 | 3.05 |
| 11:43 AM | 14.80 | 30.60 | 0.35 | 3.09 |
| 11:44 AM | 14.80 | 30.90 | 0.34 | 3.15 |
| 11:45 AM | 14.80 | 30.84 | 0.40 | 3.19 |
| 11:46 AM | 14.80 | 30.94 | 0.35 | 3.20 |
| 11:47 AM | 14.80 | 30.80 | 0.34 | 3.20 |
| 11:48 AM | 14.80 | 31.35 | 0.35 | 3.16 |
| 11:49 AM | 14.80 | 30.88 | 0.35 | 3.14 |
| 11:50 AM | 14.80 | 30.77 | 0.35 | 3.09 |
| 11:51 AM | 14.80 | 30.08 | 0.32 | 3.13 |
| 11:52 AM | 14.80 | 29.54 | 0.35 | 3.26 |
| 11:53 AM | 14.80 | 29.57 | 0.33 | 3.37 |
| 11:54 AM | 14.70 | 29.58 | 0.34 | 3.45 |
| 11:55 AM | 14.80 | 29.86 | 0.32 | 3.50 |
| 11:56 AM | 14.80 | 29.53 | 0.35 | 3.50 |
| 11:57 AM | 14.80 | 30.20 | 0.35 | 3.45 |
| 11:58 AM | 14.80 | 30.20 | 0.35 | 3.44 |
| 11:59 AM | 14.80 | 30.24 | 0.35 | 3.41 |
| 12:00 PM | 14.80 | 30.25 | 0.36 | 3.35 |
| 12:01 PM | 14.80 | 30.66 | 0.35 | 3.32 |
| Average | 14.80 | 30.42 | 0.35 | 3.26 |

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

Glow Energy Co., Ltd.

EMISSION TEST RESULT

Date: February 22, 2022
 Start time: 12:02 PM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 100 AH
 CO instrument Model: API 300 A
 Fuel Type: Natural Gas

Run #: 3
 Location: HRSG 1C
 Finish time: 12:22 PM
 Serial No.: 161212-14
 Serial No.: 314
 Serial No.: 132
 Serial No.: 1070
 Test Operator: Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|-----------|--------------------|-----------------------|-----------------------|----------|
| 12:02 PM | 14.80 | 30.17 | 0.35 | 3.27 |
| 12:03 PM | 14.80 | 30.14 | 0.35 | 3.26 |
| 12:04 PM | 14.80 | 29.69 | 0.34 | 3.29 |
| 12:05 PM | 14.80 | 29.82 | 0.35 | 3.32 |
| 12:06 PM | 14.80 | 30.07 | 0.35 | 3.32 |
| 12:07 PM | 14.80 | 29.75 | 0.35 | 3.32 |
| 12:08 PM | 14.80 | 30.51 | 0.37 | 3.29 |
| 12:09 PM | 14.80 | 30.81 | 0.41 | 3.26 |
| 12:10 PM | 14.80 | 30.88 | 0.36 | 3.24 |
| 12:11 PM | 14.80 | 31.01 | 0.35 | 3.17 |
| 12:12 PM | 14.80 | 31.17 | 0.35 | 3.14 |
| 12:13 PM | 14.80 | 30.84 | 0.36 | 3.14 |
| 12:14 PM | 14.80 | 30.06 | 0.34 | 3.17 |
| 12:15 PM | 14.80 | 29.59 | 0.37 | 3.28 |
| 12:16 PM | 14.70 | 29.98 | 0.32 | 3.38 |
| 12:17 PM | 14.80 | 29.63 | 0.35 | 3.45 |
| 12:18 PM | 14.70 | 29.36 | 0.35 | 3.48 |
| 12:19 PM | 14.80 | 30.28 | 0.38 | 3.42 |
| 12:20 PM | 14.80 | 30.70 | 0.34 | 3.34 |
| 12:21 PM | 14.70 | 29.86 | 0.33 | 3.30 |
| 12:22 PM | 14.80 | 29.87 | 0.35 | 3.27 |
| Average | 14.79 | 30.20 | 0.35 | 3.29 |

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิภาวดีรังสิต แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME : Glow Energy Public Co., Ltd. REFERENCE NO. : 222048 Stk (Cert.)2A (Apr)
 SAMPLING BY : SECOT Co., Ltd. SAMPLING DATE : 05/04/2022
 RECEIVED DATE : 06/04/2022 ANALYTICAL DATE : 06-07/04/2022
 REPORT DATE : 19/04/2022 SAMPLE CONDITION : Normal
 STACK LOCATION : HRSG 2A SITE OPERATOR : Mr. Song Hangchhwankun
 SOURCE DESCRIPTION : Combustion FUEL TYPE : Natural Gas

STATION DESCRIPTION

Height : 35.0 m Gas Velocity : 23.6 m/s
 Diameter : 3.25 m Flow Rate ^{1/} : 7,160 Ncu.m/min
 Temperature : 160.3 °C Oxygen Content : 14.0 %

| PARAMETER | UNIT | RESULTS ^{1/} | | STANDARD ^{2/} | REFERENCE |
|--------------------|-----------|-----------------------|------------------|------------------------|-------------------|
| | | 14.0% O ₂ | 7%O ₂ | 7% O ₂ | |
| Particulate matter | mg/Ncu.m. | 1.1 | 2.1 | 60 | U.S. EPA Method 5 |

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO. 7-239-ก-8183

Main Poowasanpetch

(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 7-239-ก-6419

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ^{1/} At standard pressure of 760 mm.Hg and temperature of 25 °C, dry basis.4. ^{2/} Notification of Ministry of Industry, B.E.2547 @ 7%O₂.

The Monitoring Result of Emission Concentration
HRSG 2A
Glow Energy Co., Ltd.
April 5, 2022

Glow Energy Co., Ltd.
EMISSION TEST RESULT

| Run Number | Oxygen content (%) | | Oxide of Nitrogen (ppm) | | |
|----------------|--------------------|--------------------|-------------------------|-------------------------------|---------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O2 | Corrected Gas Conc @7% O2 |
| 1 | 13.85 | 13.90 | 41.82 | 41.82 | 83.04 |
| 2 | 14.06 | 14.08 | 39.64 | 39.64 | 80.79 |
| 3 | 14.12 | 14.11 | 37.45 | 37.45 | 76.66 |
| Average | 14.01 | 14.03 | 39.64 | 39.64 | 80.20 |

| Run Number | Oxygen content (%) | | Sulfur dioxide (ppm) | | |
|----------------|--------------------|--------------------|----------------------|-------------------------------|---------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O2 | Corrected Gas Conc @7% O2 |
| 1 | 13.85 | 13.90 | 0.15 | 0.12 | 0.24 |
| 2 | 14.06 | 14.08 | 0.16 | 0.13 | 0.26 |
| 3 | 14.12 | 14.11 | 0.15 | 0.12 | 0.25 |
| Average | 14.01 | 14.03 | 0.15 | 0.12 | 0.25 |

| Run Number | Oxygen content (%) | | Carbonmonoxide (ppm) | | |
|----------------|--------------------|--------------------|----------------------|-------------------------------|---------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O2 | Corrected Gas Conc @7% O2 |
| 1 | 13.85 | 13.90 | 13.37 | 13.34 | 26.49 |
| 2 | 14.06 | 14.08 | 15.43 | 15.40 | 31.39 |
| 3 | 14.12 | 14.11 | 19.24 | 19.22 | 39.35 |
| Average | 14.01 | 14.03 | 16.01 | 15.99 | 32.35 |

Date: April 5, 2022
 Start time: 3:10 PM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: TELEDYNE 200 EM
 SO₂ instrument Model: API 100 AH
 CO instrument Model: THERMO 48 C
 Fuel Type : Natural Gas

Run # : 1
 Location : HRSG 2A
 Finish time : 3:30 PM
 Serial No.: 111117-2
 Serial No.: 435
 Serial No.: 058
 Serial No.: 365
 Test Operator : Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|----------------|--------------------|-----------------------|-----------------------|--------------|
| 3:10 PM | 14.02 | 39.27 | 0.16 | 19.12 |
| 3:11 PM | 14.06 | 39.45 | 0.16 | 17.18 |
| 3:12 PM | 14.02 | 39.53 | 0.16 | 15.82 |
| 3:13 PM | 13.89 | 40.28 | 0.16 | 15.45 |
| 3:14 PM | 13.83 | 41.36 | 0.16 | 14.51 |
| 3:15 PM | 13.80 | 42.17 | 0.16 | 9.37 |
| 3:16 PM | 13.70 | 42.53 | 0.16 | 14.01 |
| 3:17 PM | 13.64 | 42.81 | 0.16 | 14.11 |
| 3:18 PM | 13.59 | 43.24 | 0.16 | 14.14 |
| 3:19 PM | 13.64 | 43.73 | 0.15 | 9.64 |
| 3:20 PM | 13.65 | 43.55 | 0.16 | 12.34 |
| 3:21 PM | 13.70 | 43.20 | 0.16 | 14.07 |
| 3:22 PM | 13.79 | 42.86 | 0.16 | 14.44 |
| 3:23 PM | 13.85 | 42.24 | 0.16 | 14.10 |
| 3:24 PM | 13.90 | 41.91 | 0.16 | 13.27 |
| 3:25 PM | 13.90 | 41.96 | 0.16 | 13.54 |
| 3:26 PM | 13.95 | 42.00 | 0.14 | 11.93 |
| 3:27 PM | 13.96 | 41.93 | 0.14 | 8.53 |
| 3:28 PM | 13.97 | 41.72 | 0.14 | 8.39 |
| 3:29 PM | 13.98 | 41.43 | 0.14 | 12.26 |
| 3:30 PM | 13.97 | 41.14 | 0.14 | 14.46 |
| Average | 13.85 | 41.82 | 0.15 | 13.37 |

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

Glow Energy Co., Ltd.
EMISSION TEST RESULT

Date: April 5, 2022
 Start time: 3:31 PM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: TELEDYNE 200 EM
 SO₂ instrument Model: API 100 AH
 CO instrument Model: THERMO 48 C
 Fuel Type : Natural Gas

Run # : 2
 Location : HRSG 2A
 Finish time : 3:51 PM
 Serial No.: 111117-2
 Serial No.: 435
 Serial No.: 058
 Serial No.: 365
 Test Operator : Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|-----------|--------------------|-----------------------|-----------------------|----------|
| 3:31 PM | 13.97 | 40.87 | 0.15 | 14.20 |
| 3:32 PM | 13.96 | 40.61 | 0.14 | 14.33 |
| 3:33 PM | 13.92 | 40.83 | 0.14 | 14.46 |
| 3:34 PM | 13.94 | 41.00 | 0.15 | 14.26 |
| 3:35 PM | 13.99 | 40.74 | 0.15 | 13.72 |
| 3:36 PM | 14.00 | 40.62 | 0.15 | 13.33 |
| 3:37 PM | 13.99 | 40.54 | 0.15 | 13.92 |
| 3:38 PM | 14.08 | 40.34 | 0.15 | 14.36 |
| 3:39 PM | 14.12 | 39.91 | 0.16 | 14.66 |
| 3:40 PM | 14.06 | 39.85 | 0.16 | 15.02 |
| 3:41 PM | 14.11 | 39.78 | 0.16 | 14.35 |
| 3:42 PM | 14.09 | 39.37 | 0.16 | 16.02 |
| 3:43 PM | 14.09 | 39.19 | 0.16 | 16.19 |
| 3:44 PM | 14.14 | 38.86 | 0.16 | 16.19 |
| 3:45 PM | 14.09 | 38.70 | 0.16 | 16.86 |
| 3:46 PM | 14.13 | 38.66 | 0.16 | 16.99 |
| 3:47 PM | 14.16 | 38.28 | 0.16 | 19.52 |
| 3:48 PM | 14.16 | 38.12 | 0.16 | 16.39 |
| 3:49 PM | 14.15 | 38.41 | 0.16 | 16.82 |
| 3:50 PM | 14.08 | 38.72 | 0.16 | 16.62 |
| 3:51 PM | 14.11 | 39.03 | 0.16 | 15.92 |
| Average | 14.06 | 39.64 | 0.16 | 15.43 |

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

Glow Energy Co., Ltd.
EMISSION TEST RESULT

Date: April 5, 2022
 Start time: 3:52 PM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: TELEDYNE 200 EM
 SO₂ instrument Model: API 100 AH
 CO instrument Model: THERMO 48 C
 Fuel Type : Natural Gas

Run # : 3
 Location : HRSG 2A
 Finish time : 4:12 PM
 Serial No.: 111117-2
 Serial No.: 435
 Serial No.: 058
 Serial No.: 365
 Test Operator : Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|-----------|--------------------|-----------------------|-----------------------|----------|
| 3:52 PM | 14.11 | 38.79 | 0.15 | 16.55 |
| 3:53 PM | 14.11 | 38.18 | 0.16 | 16.95 |
| 3:54 PM | 14.09 | 37.82 | 0.16 | 19.09 |
| 3:55 PM | 14.13 | 37.31 | 0.16 | 18.58 |
| 3:56 PM | 14.14 | 36.76 | 0.16 | 19.35 |
| 3:57 PM | 14.15 | 36.59 | 0.15 | 19.82 |
| 3:58 PM | 14.16 | 36.57 | 0.15 | 20.68 |
| 3:59 PM | 14.22 | 35.77 | 0.15 | 21.78 |
| 4:00 PM | 14.17 | 35.26 | 0.15 | 22.58 |
| 4:01 PM | 14.18 | 35.40 | 0.15 | 22.88 |
| 4:02 PM | 14.23 | 35.36 | 0.15 | 22.92 |
| 4:03 PM | 14.21 | 35.41 | 0.15 | 22.82 |
| 4:04 PM | 14.19 | 35.69 | 0.15 | 22.18 |
| 4:05 PM | 14.22 | 35.85 | 0.15 | 22.38 |
| 4:06 PM | 14.17 | 37.80 | 0.15 | 20.75 |
| 4:07 PM | 14.16 | 37.82 | 0.16 | 18.95 |
| 4:08 PM | 14.07 | 38.62 | 0.16 | 17.11 |
| 4:09 PM | 13.99 | 39.84 | 0.16 | 14.98 |
| 4:10 PM | 13.98 | 40.48 | 0.16 | 14.01 |
| 4:11 PM | 13.91 | 40.56 | 0.15 | 14.82 |
| 4:12 PM | 13.85 | 40.66 | 0.15 | 14.85 |
| Average | 14.12 | 37.45 | 0.15 | 19.24 |

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางจ้อ เขตบางจ้อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

| | | | |
|--------------------|--------------------------------|------------------|-------------------------------|
| CLIENT NAME | : Glow Energy Public Co., Ltd. | REFERENCE NO. | : 222048 Stk (Cert.)/2B (Feb) |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING DATE | : 23/02/2022 |
| RECEIVED DATE | : 25/02/2022 | ANALYTICAL DATE | : 25-28/02/2022 |
| REPORT DATE | : 04/03/2022 | SAMPLE CONDITION | : Normal |
| STACK LOCATION | : HRSG 2B | SITE OPERATOR | : Mr. Song Hangchhankun |
| SOURCE DESCRIPTION | : Combustion | FUEL TYPE | : Natural Gas |

STATION DESCRIPTION

| | | | |
|-------------|------------|-------------------------|------------------------------|
| Height | : 35.0 m | Gas Velocity | : 18.6 m/s |
| Diameter | : 3.25 m | Flow Rate ^{1/} | : 5,942 Nm ³ /min |
| Temperature | : 140.8 °C | Oxygen Content | : 14.3 % |

| PARAMETER | UNIT | RESULTS ^{1/} | | STANDARD ^{2/} | REFERENCE |
|--------------------|--------------------|-----------------------|-------------------|------------------------|-------------------|
| | | 14.3% O ₂ | 7% O ₂ | 7% O ₂ | |
| Particulate matter | mg/Nm ³ | 1.6 | 3.4 | 60 | U.S. EPA Method 5 |

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO. 2-239-ก-8183

Naris Poowasanetch

(Miss Narisa Poowasanetch)

Technical Management Team

REG.NO. 2-239-ก-6419

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ^{1/} At standard pressure of 760 mm.Hg and temperature of 25 °C, dry basis.4. ^{2/} Notification of Ministry of Industry, B.E.2547 @ 7%O₂.

The Monitoring Result of Emission Concentration

HRSG 2B

Glow Energy Co., Ltd.

February 23, 2022

| Run Number | Oxygen content (%) | | Oxide of Nitrogen (ppm) | | |
|------------|--------------------|--------------------|-------------------------|---|---------------------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O ₂ | Corrected Gas Conc @7% O ₂ |
| 1 | 14.33 | 14.32 | 32.34 | 32.33 | 68.30 |
| 2 | 14.27 | 14.26 | 34.27 | 34.27 | 71.74 |
| 3 | 14.36 | 14.34 | 32.26 | 32.25 | 68.33 |
| Average | 14.32 | 14.31 | 32.96 | 32.95 | 69.46 |

| Run Number | Oxygen content (%) | | Sulfur dioxide (ppm) | | |
|------------|--------------------|--------------------|----------------------|---|---------------------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O ₂ | Corrected Gas Conc @7% O ₂ |
| 1 | 14.33 | 14.32 | 0.30 | 0.22 | 0.46 |
| 2 | 14.27 | 14.26 | 0.33 | 0.26 | 0.54 |
| 3 | 14.36 | 14.34 | 0.32 | 0.26 | 0.55 |
| Average | 14.32 | 14.31 | 0.32 | 0.25 | 0.52 |

| Run Number | Oxygen content (%) | | Carbonmonoxide (ppm) | | |
|------------|--------------------|--------------------|----------------------|---|---------------------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O ₂ | Corrected Gas Conc @7% O ₂ |
| 1 | 14.33 | 14.32 | 31.11 | 31.10 | 65.70 |
| 2 | 14.27 | 14.26 | 25.87 | 25.86 | 54.13 |
| 3 | 14.36 | 14.34 | 31.10 | 31.09 | 65.88 |
| Average | 14.32 | 14.31 | 29.36 | 29.35 | 61.88 |

Glow Energy Co., Ltd.
EMISSION TEST RESULT

Date: February 23, 2022
Start time: 11:10 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
CO instrument Model: API 300 A
Fuel Type : Natural Gas

Run # : 1
Location : HRSG 2B
Finish time : 11:30 AM
Serial No.: 161212-14
Serial No.: 314
Serial No.: 132
Serial No.: 1070
Test Operator : Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|----------------|--------------------|-----------------------|-----------------------|----------|
| 11:10 AM | 14.30 | 32.43 | 0.26 | 31.23 |
| 11:11 AM | 14.30 | 32.23 | 0.30 | 31.26 |
| 11:12 AM | 14.30 | 32.28 | 0.28 | 31.21 |
| 11:13 AM | 14.30 | 32.17 | 0.30 | 31.12 |
| 11:14 AM | 14.40 | 32.16 | 0.31 | 31.06 |
| 11:15 AM | 14.30 | 32.27 | 0.26 | 31.09 |
| 11:16 AM | 14.30 | 32.10 | 0.30 | 31.08 |
| 11:17 AM | 14.30 | 32.10 | 0.27 | 31.11 |
| 11:18 AM | 14.30 | 32.12 | 0.31 | 31.15 |
| 11:19 AM | 14.30 | 32.00 | 0.30 | 31.14 |
| 11:20 AM | 14.30 | 31.99 | 0.31 | 31.20 |
| 11:21 AM | 14.30 | 31.90 | 0.31 | 31.18 |
| 11:22 AM | 14.30 | 32.41 | 0.31 | 31.14 |
| 11:23 AM | 14.30 | 32.32 | 0.31 | 31.12 |
| 11:24 AM | 14.30 | 32.32 | 0.31 | 31.07 |
| 11:25 AM | 14.30 | 32.37 | 0.29 | 31.04 |
| 11:26 AM | 14.40 | 32.46 | 0.29 | 31.02 |
| 11:27 AM | 14.40 | 32.47 | 0.29 | 30.97 |
| 11:28 AM | 14.40 | 33.15 | 0.30 | 30.97 |
| 11:29 AM | 14.40 | 32.93 | 0.31 | 31.04 |
| 11:30 AM | 14.40 | 33.00 | 0.30 | 31.12 |
| Average | 14.33 | 32.34 | 0.30 | 31.11 |

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

Glow Energy Co., Ltd.
EMISSION TEST RESULT

Date: February 23, 2022
Start time: 11:31 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
CO instrument Model: API 300 A
Fuel Type : Natural Gas

Run # : 2
Location : HRSG 2B
Finish time : 11:51 AM
Serial No.: 161212-14
Serial No.: 314
Serial No.: 132
Serial No.: 1070
Test Operator : Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|----------------|--------------------|-----------------------|-----------------------|----------|
| 11:31 AM | 14.40 | 32.97 | 0.28 | 31.20 |
| 11:32 AM | 14.30 | 33.07 | 0.29 | 31.26 |
| 11:33 AM | 14.30 | 33.20 | 0.28 | 31.23 |
| 11:34 AM | 14.30 | 33.16 | 0.31 | 31.06 |
| 11:35 AM | 14.30 | 33.25 | 0.31 | 30.84 |
| 11:36 AM | 14.20 | 33.16 | 0.28 | 30.62 |
| 11:37 AM | 14.20 | 32.71 | 0.32 | 30.52 |
| 11:38 AM | 14.20 | 32.72 | 0.31 | 26.08 |
| 11:39 AM | 14.20 | 35.07 | 0.35 | 22.06 |
| 11:40 AM | 14.20 | 35.65 | 0.32 | 21.84 |
| 11:41 AM | 14.20 | 35.94 | 0.37 | 21.77 |
| 11:42 AM | 14.20 | 36.34 | 0.37 | 21.72 |
| 11:43 AM | 14.20 | 35.85 | 0.37 | 21.74 |
| 11:44 AM | 14.30 | 35.75 | 0.36 | 21.80 |
| 11:45 AM | 14.30 | 35.80 | 0.34 | 21.94 |
| 11:46 AM | 14.30 | 35.43 | 0.37 | 22.13 |
| 11:47 AM | 14.30 | 34.55 | 0.37 | 26.03 |
| 11:48 AM | 14.30 | 33.37 | 0.37 | 26.58 |
| 11:49 AM | 14.30 | 34.22 | 0.33 | 24.21 |
| 11:50 AM | 14.30 | 34.11 | 0.31 | 24.20 |
| 11:51 AM | 14.30 | 33.38 | 0.33 | 24.52 |
| Average | 14.27 | 34.27 | 0.33 | 25.87 |

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

Glow Energy Co., Ltd. EMISSION TEST RESULT

Date: February 23, 2022
Start time: 11:52 AM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
CO instrument Model: API 300 A
Fuel Type: Natural Gas

Run #: 3
Location: HRSG 2B
Finish time: 12:12 PM
Serial No.: 161212-14
Serial No.: 314
Serial No.: 132
Serial No.: 1070
Test Operator: Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|----------------|--------------------|-----------------------|-----------------------|----------|
| 11:52 AM | 14.30 | 33.17 | 0.35 | 25.06 |
| 11:53 AM | 14.30 | 32.86 | 0.29 | 29.09 |
| 11:54 AM | 14.40 | 31.88 | 0.31 | 31.56 |
| 11:55 AM | 14.40 | 31.75 | 0.31 | 31.59 |
| 11:56 AM | 14.40 | 32.12 | 0.32 | 31.53 |
| 11:57 AM | 14.40 | 32.46 | 0.33 | 31.44 |
| 11:58 AM | 14.40 | 32.43 | 0.34 | 31.37 |
| 11:59 AM | 14.40 | 32.35 | 0.31 | 31.33 |
| 12:00 PM | 14.40 | 32.44 | 0.31 | 31.42 |
| 12:01 PM | 14.40 | 32.16 | 0.31 | 31.52 |
| 12:02 PM | 14.30 | 32.12 | 0.31 | 31.62 |
| 12:03 PM | 14.30 | 32.31 | 0.29 | 31.72 |
| 12:04 PM | 14.30 | 31.92 | 0.34 | 31.73 |
| 12:05 PM | 14.40 | 31.77 | 0.31 | 31.74 |
| 12:06 PM | 14.30 | 32.31 | 0.31 | 31.70 |
| 12:07 PM | 14.40 | 32.28 | 0.34 | 31.61 |
| 12:08 PM | 14.40 | 32.22 | 0.33 | 31.52 |
| 12:09 PM | 14.30 | 32.26 | 0.34 | 31.43 |
| 12:10 PM | 14.40 | 32.48 | 0.37 | 31.39 |
| 12:11 PM | 14.40 | 32.32 | 0.34 | 31.32 |
| 12:12 PM | 14.30 | 31.77 | 0.34 | 31.31 |
| Average | 14.36 | 32.26 | 0.32 | 31.10 |

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนวิมลคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

STACK EMISSION ANALYSIS REPORT

CLIENT NAME : Glow Energy Public Co., Ltd. **REFERENCE NO.** : 222048 Stk (Cert.)/2C (Feb)
SAMPLING BY : SECOT Co., Ltd. **SAMPLING DATE** : 23/02/2022
RECEIVED DATE : 25/02/2022 **ANALYTICAL DATE** : 25-28/02/2022
REPORT DATE : 04/03/2022 **SAMPLE CONDITION** : Normal
STACK LOCATION : HRSG 2C **SITE OPERATOR** : Mr. Song Hanghchwankun
SOURCE DESCRIPTION : Combustion **FUEL TYPE** : Natural Gas

STATION DESCRIPTION

Height : 35.0 m **Gas Velocity** : 19.8 m/s
Diameter : 3.25 m **Flow Rate**^{1/} : 6,235 Ncu,m/min
Temperature : 145.5 °C **Oxygen Content** : 14.6 %

| PARAMETER | UNIT | RESULTS ^{1/} | | STANDARD ^{2/} | REFERENCE |
|--------------------|-----------|-----------------------|-------------------|------------------------|-------------------|
| | | 14.6% O ₂ | 7% O ₂ | 7% O ₂ | METHOD |
| Particulate matter | mg/Ncu.m. | 1.7 | 3.8 | 60 | U.S. EPA Method 5 |

Phatchara Samanchan

(Miss Phatchara Samanchan)

Analyst

REG.NO. 2-239-ท-8183



(Miss Narisa Poowasanpetch)

Technical Management Team

REG.NO. 2-239-ท-6419

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ^{1/} At standard pressure of 760 mm.Hg and temperature of 25 °C, dry basis.

4. ^{2/} Notification of Ministry of Industry, B.E.2547 @ 7%O₂.

The Monitoring Result of Emission Concentration
HRSG 2C
Glow Energy Co., Ltd.
February 23, 2022

| Run Number | Oxygen content (%) | | Oxide of Nitrogen (ppm) | | |
|----------------|--------------------|--------------------|-------------------------|-------------------------------|---------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O2 | Corrected Gas Conc @7% O2 |
| 1 | 14.62 | 14.63 | 31.67 | 31.66 | 70.19 |
| 2 | 14.60 | 14.60 | 31.74 | 31.73 | 70.01 |
| 3 | 14.59 | 14.58 | 32.79 | 32.78 | 72.10 |
| Average | 14.60 | 14.60 | 32.07 | 32.06 | 70.77 |

| Run Number | Oxygen content (%) | | Sulfur dioxide (ppm) | | |
|----------------|--------------------|--------------------|----------------------|-------------------------------|---------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O2 | Corrected Gas Conc @7% O2 |
| 1 | 14.62 | 14.63 | 0.52 | 0.46 | 1.02 |
| 2 | 14.60 | 14.60 | 0.51 | 0.46 | 1.01 |
| 3 | 14.59 | 14.58 | 0.55 | 0.51 | 1.12 |
| Average | 14.60 | 14.60 | 0.53 | 0.48 | 1.05 |

| Run Number | Oxygen content (%) | | Carbonmonoxide (ppm) | | |
|----------------|--------------------|--------------------|----------------------|-------------------------------|---------------------------|
| | RM Stack Gas Conc | Corrected Gas Conc | RM Stack Gas Conc | Corrected Gas Conc @Actual O2 | Corrected Gas Conc @7% O2 |
| 1 | 14.62 | 14.63 | 28.15 | 28.14 | 62.38 |
| 2 | 14.60 | 14.60 | 30.01 | 30.00 | 66.19 |
| 3 | 14.59 | 14.58 | 29.53 | 29.51 | 64.90 |
| Average | 14.60 | 14.60 | 29.23 | 29.22 | 64.50 |

Glow Energy Co., Ltd.
EMISSION TEST RESULT

Date: February 23, 2022
 Start time: 1:00 PM
 O₂ instrument Model: AMI 70
 NO_x instrument Model: API 200 AH
 SO₂ instrument Model: API 100 AH
 CO instrument Model: API 300 A
 Fuel Type : Natural Gas

Run # : 1
 Location : HRSG 2C
 Finish time : 1:20 PM
 Serial No.: 161212-14
 Serial No.: 314
 Serial No.: 132
 Serial No.: 1070
 Test Operator : Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|----------------|--------------------|-----------------------|-----------------------|--------------|
| 1:00 PM | 14.50 | 31.82 | 0.50 | 23.26 |
| 1:01 PM | 14.60 | 31.82 | 0.50 | 23.17 |
| 1:02 PM | 14.60 | 31.23 | 0.50 | 23.42 |
| 1:03 PM | 14.70 | 30.56 | 0.49 | 24.84 |
| 1:04 PM | 14.60 | 29.12 | 0.45 | 28.58 |
| 1:05 PM | 14.60 | 28.58 | 0.50 | 28.63 |
| 1:06 PM | 14.60 | 30.76 | 0.51 | 28.60 |
| 1:07 PM | 14.70 | 32.49 | 0.53 | 28.63 |
| 1:08 PM | 14.70 | 32.31 | 0.50 | 28.69 |
| 1:09 PM | 14.60 | 32.49 | 0.54 | 28.84 |
| 1:10 PM | 14.70 | 32.80 | 0.57 | 28.99 |
| 1:11 PM | 14.60 | 32.58 | 0.56 | 29.18 |
| 1:12 PM | 14.70 | 32.41 | 0.50 | 29.35 |
| 1:13 PM | 14.60 | 31.87 | 0.54 | 29.46 |
| 1:14 PM | 14.70 | 31.76 | 0.52 | 29.62 |
| 1:15 PM | 14.60 | 31.48 | 0.52 | 29.62 |
| 1:16 PM | 14.60 | 31.32 | 0.53 | 29.62 |
| 1:17 PM | 14.60 | 32.67 | 0.53 | 29.62 |
| 1:18 PM | 14.60 | 33.00 | 0.53 | 29.61 |
| 1:19 PM | 14.60 | 32.42 | 0.54 | 29.70 |
| 1:20 PM | 14.60 | 31.67 | 0.51 | 29.74 |
| Average | 14.62 | 31.67 | 0.52 | 28.15 |

Signature

(Miss Katesarin Vorradetwittaya)

Environmental Scientist

Glow Energy Co., Ltd.
EMISSION TEST RESULT

Date: February 23, 2022
Start time: 1:21 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
CO instrument Model: API 300 A
Fuel Type : Natural Gas

Run # : 2
Location : HRSG 2C
Finish time : 1:41 PM
Serial No.: 161212-14
Serial No.: 314
Serial No.: 132
Serial No.: 1070
Test Operator : Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|----------------|--------------------|-----------------------|-----------------------|----------|
| 1:21 PM | 14.60 | 30.84 | 0.52 | 29.73 |
| 1:22 PM | 14.60 | 30.54 | 0.52 | 29.68 |
| 1:23 PM | 14.60 | 31.33 | 0.51 | 29.76 |
| 1:24 PM | 14.60 | 31.52 | 0.50 | 29.97 |
| 1:25 PM | 14.60 | 30.95 | 0.50 | 30.26 |
| 1:26 PM | 14.60 | 31.13 | 0.51 | 30.51 |
| 1:27 PM | 14.60 | 31.36 | 0.50 | 30.62 |
| 1:28 PM | 14.60 | 32.46 | 0.50 | 30.65 |
| 1:29 PM | 14.60 | 31.83 | 0.50 | 30.38 |
| 1:30 PM | 14.60 | 30.91 | 0.50 | 30.03 |
| 1:31 PM | 14.60 | 31.00 | 0.50 | 29.77 |
| 1:32 PM | 14.60 | 31.96 | 0.51 | 29.69 |
| 1:33 PM | 14.60 | 31.18 | 0.51 | 29.86 |
| 1:34 PM | 14.60 | 31.28 | 0.50 | 30.04 |
| 1:35 PM | 14.60 | 32.24 | 0.50 | 30.17 |
| 1:36 PM | 14.60 | 31.86 | 0.50 | 30.30 |
| 1:37 PM | 14.60 | 31.29 | 0.53 | 30.28 |
| 1:38 PM | 14.60 | 32.32 | 0.56 | 30.20 |
| 1:39 PM | 14.60 | 33.72 | 0.56 | 29.85 |
| 1:40 PM | 14.60 | 33.62 | 0.54 | 29.37 |
| 1:41 PM | 14.60 | 33.11 | 0.54 | 29.16 |
| Average | 14.60 | 31.74 | 0.51 | 30.01 |

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

Glow Energy Co., Ltd.
EMISSION TEST RESULT

Date: February 23, 2022
Start time: 1:42 PM
O₂ instrument Model: AMI 70
NO_x instrument Model: API 200 AH
SO₂ instrument Model: API 100 AH
CO instrument Model: TELEDYNE 300 EM
Fuel Type : Natural Gas

Run # : 3
Location : HRSG 2C
Finish time : 2:02 PM
Serial No.: 111117-2
Serial No.: 314
Serial No.: 060
Serial No.: 1343
Test Operator : Song H.

| Time, min | O ₂ (%) | NO _x (ppm) | SO ₂ (ppm) | CO (ppm) |
|----------------|--------------------|-----------------------|-----------------------|----------|
| 1:42 PM | 14.50 | 32.56 | 0.53 | 29.09 |
| 1:43 PM | 14.60 | 33.07 | 0.53 | 29.20 |
| 1:44 PM | 14.60 | 32.93 | 0.55 | 29.27 |
| 1:45 PM | 14.50 | 33.81 | 0.56 | 29.29 |
| 1:46 PM | 14.60 | 34.06 | 0.55 | 29.08 |
| 1:47 PM | 14.60 | 33.45 | 0.54 | 28.95 |
| 1:48 PM | 14.60 | 33.73 | 0.56 | 28.94 |
| 1:49 PM | 14.60 | 33.53 | 0.56 | 29.05 |
| 1:50 PM | 14.60 | 33.17 | 0.56 | 29.29 |
| 1:51 PM | 14.60 | 32.00 | 0.52 | 29.49 |
| 1:52 PM | 14.50 | 31.59 | 0.56 | 29.75 |
| 1:53 PM | 14.60 | 32.51 | 0.54 | 29.84 |
| 1:54 PM | 14.60 | 31.71 | 0.56 | 29.88 |
| 1:55 PM | 14.60 | 31.26 | 0.52 | 30.07 |
| 1:56 PM | 14.60 | 31.68 | 0.51 | 30.12 |
| 1:57 PM | 14.60 | 32.57 | 0.56 | 30.13 |
| 1:58 PM | 14.70 | 32.92 | 0.53 | 30.00 |
| 1:59 PM | 14.60 | 33.62 | 0.59 | 29.80 |
| 2:00 PM | 14.70 | 33.52 | 0.57 | 29.64 |
| 2:01 PM | 14.60 | 32.51 | 0.54 | 29.57 |
| 2:02 PM | 14.50 | 32.33 | 0.56 | 29.70 |
| Average | 14.59 | 32.79 | 0.55 | 29.53 |

Signature



(Miss Katesarin Vorradetwittaya)

Environmental Scientist

ภาคผนวก ง.3

ใบรับรองผลการตรวจวิเคราะห์คุณภาพน้ำ



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WATER AND WASTEWATER ANALYSIS REPORT

| | | | |
|------------------|-------------------------------------|---------------------|-----------------------------|
| CLIENT NAME | : Thai Jurong Engineering Co., Ltd. | REQUEST SERVICE No. | : 0337/65 |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING METHOD | : Grab |
| SAMPLING DATE | : 21/02/2022 | SAMPLING TIME | : 14.30 |
| RECEIVED DATE | : 22/03/2022 | ANALYTICAL DATE | : 22-28/02/2022 |
| REPORT DATE | : 02/03/2022 | SITE OPERATOR | : Mr. Chanatip Singkasemsak |
| SAMPLE CONDITION | : Normal | FILE CODE | : 222034_WW_February |

| PARAMETER | UNIT | ANALYSIS METHODS | ND (non-detectable) | STATION บ่อดักตะกอนบริเวณพื้นที่ก่อสร้าง | STANDARD ^{1/} |
|------------------------|------|---------------------|------------------------|---|------------------------|
| Temperature | °C | 2550 B | < 0.5 | 27.9 | ≤ 40 |
| pH | - | 4500-H B | < 0.10 | 8.84 | 5.5-9.0 |
| Total Dissolved Solids | mg/l | 2540 C | < 50 | 226 | ≤ 3,000 |
| Total Suspended Solids | mg/l | 2540 D | < 5 | 36 | ≤ 50 |
| Fat Oil & Grease | mg/l | 5520 B | < 0.50 | ND | ≤ 5 |

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 22nd ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 7-239-n-5976

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 7-239-n-5863

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3. ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016) and the Ministry of Industry, B.E.2560 (2017).

4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

| | | | |
|------------------|-------------------------------------|---------------------|-----------------------------|
| CLIENT NAME | : Thai Jurong Engineering Co., Ltd. | REQUEST SERVICE No. | : 0647/65 |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING METHOD | : Grab |
| SAMPLING DATE | : 28/03/2022 | SAMPLING TIME | : 14.34 |
| RECEIVED DATE | : 29/03/2022 | ANALYTICAL DATE | : 29/03/2022-04/04/2022 |
| REPORT DATE | : 05/04/2022 | SITE OPERATOR | : Mr. Chanatip Singkasemsak |
| SAMPLE CONDITION | : Normal | FILE CODE | : 222034_WW_March |

| PARAMETER | UNIT | ANALYSIS METHODS | ND (non-detectable) | STATION บ่อดักตะกอนบริเวณพื้นที่ก่อสร้าง | STANDARD ^{1/} |
|------------------------|------|---------------------|------------------------|---|------------------------|
| Temperature | °C | 2550 B | < 0.5 | 32.3 | ≤ 40 |
| pH | - | 4500-H B | < 0.10 | 7.81 | 5.5-9.0 |
| Total Dissolved Solids | mg/l | 2540 C | < 50 | 306 | ≤ 3,000 |
| Total Suspended Solids | mg/l | 2540 D | < 5 | 14 | ≤ 50 |
| Fat Oil & Grease | mg/l | 5520 B | < 0.50 | ND | ≤ 5 |

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 22nd ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

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Analyst

REG. NO. 7-239-n-5976

Araya Tipparuk

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Technical Management Team

REG. NO. 7-239-n-5863

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WATER AND WASTEWATER ANALYSIS REPORT

| | | | |
|------------------|-------------------------------------|---------------------|-----------------------------|
| CLIENT NAME | : Thai Jurong Engineering Co., Ltd. | REQUEST SERVICE No. | : 0858/65 |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING METHOD | : Grab |
| SAMPLING DATE | : 25/04/2022 | SAMPLING TIME | : 14.27 |
| RECEIVED DATE | : 26/04/2022 | ANALYTICAL DATE | : 26/04/2022-03/05/2022 |
| REPORT DATE | : 04/05/2022 | SITE OPERATOR | : Mr. Chanatip Singkasemsak |
| SAMPLE CONDITION | : Normal | FILE CODE | : 222034_WW_April |

| PARAMETER | UNIT | ANALYSIS METHODS | ND (non-detectable) | STATION บึงคดตะกอนบริเวณพื้นที่ก่อสร้าง | STANDARD ^{1/} |
|------------------------|------|------------------|---------------------|---|------------------------|
| Temperature | "C | 2550 B | < 0.5 | 33.4 | ≤ 40 |
| pH | - | 4500-H B | < 0.10 | 8.06 | 5.5-9.0 |
| Total Dissolved Solids | mg/l | 2540 C | < 50 | 564 | ≤ 3,000 |
| Total Suspended Solids | mg/l | 2540 D | < 5 | 40 | ≤ 50 |
| Fat Oil & Grease | mg/l | 5520 B | < 0.50 | ND | ≤ 5 |

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER, 21ST ED. 2017 (APHA, APCA, WEF)

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Analyst

REG. NO. 7-239-ก-5976

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Technical Management Team

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4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

| | | | |
|------------------|-------------------------------------|---------------------|-----------------------------|
| CLIENT NAME | : Thai Jurong Engineering Co., Ltd. | REQUEST SERVICE No. | : 0981/65 |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING METHOD | : Grab |
| SAMPLING DATE | : 09/05/2022 | SAMPLING TIME | : 14.20 |
| RECEIVED DATE | : 10/05/2022 | ANALYTICAL DATE | : 10-18/05/2022 |
| REPORT DATE | : 18/05/2022 | SITE OPERATOR | : Mr. Chanatip Singkasemsak |
| SAMPLE CONDITION | : Normal | FILE CODE | : 222034_WW_May |

| PARAMETER | UNIT | ANALYSIS METHODS | ND (non-detectable) | STATION บึงคดตะกอนบริเวณพื้นที่ก่อสร้าง | STANDARD ^{1/} |
|------------------------|------|------------------|---------------------|---|------------------------|
| Temperature | "C | 2550 B | < 0.5 | 34.3 | ≤ 40 |
| pH | - | 4500-H B | < 0.10 | 7.61 | 5.5-9.0 |
| Total Dissolved Solids | mg/l | 2540 C | < 50 | 373 | ≤ 3,000 |
| Total Suspended Solids | mg/l | 2540 D | < 5 | 20 | ≤ 50 |
| Fat Oil & Grease | mg/l | 5520 B | < 0.50 | ND | ≤ 5 |

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER, 21ST ED. 2017 (APHA, APCA, WEF)

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Araya Tipparak

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Technical Management Team

REG. NO. 7-239-ก-5863

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WATER AND WASTEWATER ANALYSIS REPORT

| | | | |
|------------------|-------------------------------------|---------------------|---------------------------|
| CLIENT NAME | : Thai Jurong Engineering Co., Ltd. | REQUEST SERVICE No. | : 1287/65 |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING METHOD | : Grab |
| SAMPLING DATE | : 13/06/2022 | SAMPLING TIME | : 14.25 |
| RECEIVED DATE | : 14/06/2022 | ANALYTICAL DATE | : 14-21/06/2022 |
| REPORT DATE | : 21/06/2022 | SITE OPERATOR | : Mr. Chanatip Singkamsak |
| SAMPLE CONDITION | : Normal | FILE CODE | : 222034_WW_June |

| PARAMETER | UNIT | ANALYSIS | ND | STATION | STANDARD ^{1/} |
|------------------------|------|----------|------------------|---------------------------------|------------------------|
| | | METHODS | (non-detectable) | บ่อตกตะกอนบริเวณพื้นที่ก่อสร้าง | |
| Temperature | °C | 2550 B | < 0.5 | 31.9 | ≤ 40 |
| pH | - | 4500-H B | < 0.10 | 5.62 | 5.5-9.0 |
| Total Dissolved Solids | mg/l | 2540 C | < 50 | 722 | ≤ 3,000 |
| Total Suspended Solids | mg/l | 2540 D | < 5 | 8 | ≤ 50 |
| Fat Oil & Grease | mg/l | 5520 B | < 0.50 | ND | ≤ 5 |

REFERENCE: STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA/APHA, WEF)

(Miss Khemchuda Insorn)

Analyst

REG. NO. 1-239-K-5976

(Mrs. Araya Tipparuk)

Technical Management Team

REG.NO. 1-239-K-5863

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4. - Not available.

ภาคผนวก ง.4

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WATER AND WASTEWATER ANALYSIS REPORT

| | | | |
|------------------|-------------------------------|---------------------|-----------------------------|
| CLIENT NAME | : Glow Energy Public Co., Ltd | REQUEST SERVICE No. | : 0003/65 |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING METHOD | : Grab |
| SAMPLING DATE | : 04/01/2022 | SAMPLING TIME | : 14.08 |
| RECEIVED DATE | : 05/01/2022 | ANALYTICAL DATE | : 05-12/01/2022 |
| REPORT DATE | : 13/01/2022 | SITE OPERATOR | : Mr. Chanatip Singkasemsak |
| SAMPLE CONDITION | : Normal | FILE CODE | : 222048_WW_January |

| PARAMETER | UNIT | ANALYSIS METHODS | ND (non-detectable) | STATION Holding Pond No.1 | STANDARD ^{1/} |
|------------------------|--------------------|-----------------------|---------------------|---------------------------|------------------------|
| Flow Rate | m ³ /hr | - | - | 0 | - |
| Temperature | °C | 2550 B | < 0.5 | 29.7 | ≤ 40 |
| pH | - | 4500-H ⁺ B | < 0.10 | 7.97 | 5.5-9.0 |
| Color | ADMI | 2120 F | < 6.0 | 40.6 | ≤ 300 |
| Total Dissolved Solids | mg/l | 2540 C | < 50 | 1,328 | ≤ 3,000 |
| Total Suspended Solids | mg/l | 2540 D | < 5 | < 5 | ≤ 50 |
| Fat Oil & Grease | mg/l | 5520 B | < 0.50 | ND | ≤ 5 |
| Free Chlorine | mg/l | 4500-Cl G | < 0.03 | 0.04 | ≤ 1 |
| Chloride | mg/l | 4500-Cl B | < 1.0 | 153 | - |
| BOD ₅ | mg/l | 5210 B | < 1.0 | 8.9 | ≤ 20 |
| COD | mg/l | 5220 D | < 40.00 | 69.08 | ≤ 120 |

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

REG. NO. 2-239-ก-5976

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG. NO. 2-239-ก-5863

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3. ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).

4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

| | | | |
|------------------|-------------------------------|---------------------|-----------------------------|
| CLIENT NAME | : Glow Energy Public Co., Ltd | REQUEST SERVICE No. | : 0234/65 |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING METHOD | : Grab |
| SAMPLING DATE | : 07/02/2022 | SAMPLING TIME | : 14.07 |
| RECEIVED DATE | : 08/02/2022 | ANALYTICAL DATE | : 08-17/02/2022 |
| REPORT DATE | : 17/02/2022 | SITE OPERATOR | : Mr. Chanatip Singkasemsak |
| SAMPLE CONDITION | : Normal | FILE CODE | : 222048_WW_February |

| PARAMETER | UNIT | ANALYSIS METHODS | ND (non-detectable) | STATION Holding Pond No.1 | STANDARD ^{1/} |
|------------------------|--------------------|-----------------------|---------------------|---------------------------|------------------------|
| Flow Rate | m ³ /hr | - | - | 103 | - |
| Temperature | °C | 2550 B | < 0.5 | 31.5 | ≤ 40 |
| pH | - | 4500-H ⁺ B | < 0.10 | 8.08 | 5.5-9.0 |
| Color | ADMI | 2120 F | < 6.0 | 36.4 | ≤ 300 |
| Total Dissolved Solids | mg/l | 2540 C | < 50 | 1,602 | ≤ 3,000 |
| Total Suspended Solids | mg/l | 2540 D | < 5 | 5 | ≤ 50 |
| Fat Oil & Grease | mg/l | 5520 B | < 0.50 | ND | ≤ 5 |
| Free Chlorine | mg/l | 4500-Cl G | < 0.03 | ND | ≤ 1 |
| Chloride | mg/l | 4500-Cl B | < 1.0 | 220 | - |
| BOD ₅ | mg/l | 5210 B | < 1.0 | 3.7 | ≤ 20 |
| COD | mg/l | 5220 D | < 40.00 | 58.80 | ≤ 120 |

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA APHA WEF)

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3. ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).

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WATER AND WASTEWATER ANALYSIS REPORT

| | | | |
|------------------|-------------------------------|---------------------|-----------------------------|
| CLIENT NAME | : Glow Energy Public Co., Ltd | REQUEST SERVICE No. | : 0474/65 |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING METHOD | : Grab |
| SAMPLING DATE | : 07/03/2022 | SAMPLING TIME | : 14.39 |
| RECEIVED DATE | : 08/03/2022 | ANALYTICAL DATE | : 08-14/03/2022 |
| REPORT DATE | : 15/03/2022 | SITE OPERATOR | : Mr. Chanatip Singkasemsak |
| SAMPLE CONDITION | : Normal | FILE CODE | : 222048_WW_March |

| PARAMETER | UNIT | ANALYSIS METHODS | ND (non-detectable) | STATION Holding Pond No.1 | STANDARD ^U |
|------------------------|--------------------|-----------------------|---------------------|---------------------------|-----------------------|
| Flow Rate | m ³ /hr | - | - | 100 | - |
| Temperature | °C | 2550 B | < 0.5 | 31.9 | ≤ 40 |
| pH | - | 4500-H ⁺ B | < 0.10 | 7.59 | 5.5-9.0 |
| Color | ADMI | 2120 F | < 6.0 | 29.0 | ≤ 300 |
| Total Dissolved Solids | mg/l | 2540 C | < 50 | 2,412 | ≤ 3,000 |
| Total Suspended Solids | mg/l | 2540 D | < 5 | 17 | ≤ 50 |
| Fat Oil & Grease | mg/l | 5520 B | < 0.50 | ND | ≤ 5 |
| Free Chlorine | mg/l | 4500-Cl G | < 0.03 | ND | ≤ 1 |
| Chloride | mg/l | 4500-Cl B | < 1.0 | 849 | - |
| BOD ₅ | mg/l | 5210 B | < 1.0 | 3.3 | ≤ 20 |
| COD | mg/l | 5220 D | < 40.00 | 72.34 | ≤ 120 |

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA, APHA, WEF)

Khemchuda Insorn

(Miss Khemchuda Insorn)

Analyst

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Technical Management Team

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3. ^U Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).

4. - Not available.



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WATER AND WASTEWATER ANALYSIS REPORT

| | | | |
|------------------|-------------------------------|---------------------|-----------------------------|
| CLIENT NAME | : Glow Energy Public Co., Ltd | REQUEST SERVICE No. | : 0694/65 |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING METHOD | : Grab |
| SAMPLING DATE | : 04/04/2022 | SAMPLING TIME | : 14.26 |
| RECEIVED DATE | : 05/04/2022 | ANALYTICAL DATE | : 05-12/04/2022 |
| REPORT DATE | : 12/04/2022 | SITE OPERATOR | : Mr. Chanatip Singkasemsak |
| SAMPLE CONDITION | : Normal | FILE CODE | : 222048_WW_April |

| PARAMETER | UNIT | ANALYSIS METHODS | ND (non-detectable) | STATION Holding Pond No.1 | STANDARD ^U |
|------------------------|--------------------|-----------------------|---------------------|---------------------------|-----------------------|
| Flow Rate | m ³ /hr | - | - | 62.2 | - |
| Temperature | °C | 2550 B | < 0.5 | 31.6 | ≤ 40 |
| pH | - | 4500-H ⁺ B | < 0.10 | 7.98 | 5.5-9.0 |
| Color | ADMI | 2120 F | < 6.0 | 41.0 | ≤ 300 |
| Total Dissolved Solids | mg/l | 2540 C | < 50 | 1,888 | ≤ 3,000 |
| Total Suspended Solids | mg/l | 2540 D | < 5 | 5 | ≤ 50 |
| Fat Oil & Grease | mg/l | 5520 B | < 0.50 | ND | ≤ 5 |
| Free Chlorine | mg/l | 4500-Cl G | < 0.03 | 0.06 | ≤ 1 |
| Chloride | mg/l | 4500-Cl B | < 1.0 | 478 | - |
| BOD ₅ | mg/l | 5210 B | < 1.0 | 2.8 | ≤ 20 |
| COD | mg/l | 5220 D | < 40.00 | 69.65 | ≤ 120 |

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 21st ED. 2017 (AWWA, APHA, WEF)

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(Miss Khemchuda Insorn)

Analyst

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(Mrs. Araya Tipparuk)

Technical Management Team

REG.NO. 1-239-ก-5863

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. ^U Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).

4. - Not available.



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SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร 10800
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TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

| | | | |
|------------------|-------------------------------|---------------------|-----------------------------|
| CLIENT NAME | : Glow Energy Public Co., Ltd | REQUEST SERVICE No. | : 0902/65 |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING METHOD | : Grab |
| SAMPLING DATE | : 03/05/2022 | SAMPLING TIME | : 14.18 |
| RECEIVED DATE | : 04/05/2022 | ANALYTICAL DATE | : 04-11/05/2022 |
| REPORT DATE | : 11/05/2022 | SITE OPERATOR | : Mr. Chanatip Singkasemsak |
| SAMPLE CONDITION | : Normal | FILE CODE | : 222048_WW_May |

| PARAMETER | UNIT | ANALYSIS METHODS | ND (non-detectable) | STATION Holding Pond No.1 | STANDARD ^{1/} |
|------------------------|--------------------|------------------------|---------------------|---------------------------|------------------------|
| Flow Rate | m ³ /hr | | | 118.0 | |
| Temperature | °C | 2550 B | < 0.5 | 31.7 | ≤ 40 |
| pH | | 4500-H ⁺ B | < 0.10 | 7.77 | 5.5-9.0 |
| Color | ADMI | 2120 F | < 6.0 | 29.8 | ≤ 300 |
| Total Dissolved Solids | mg/l | 2540 C | < 50 | 1,167 | ≤ 3,000 |
| Total Suspended Solids | mg/l | 2540 D | < 5 | < 5 | ≤ 50 |
| Fat Oil & Grease | mg/l | 5520 B | < 0.50 | ND | ≤ 5 |
| Free Chlorine | mg/l | 4500-Cl ⁻ G | < 0.03 | ND | ≤ 1 |
| Chloride | mg/l | 4500-Cl ⁻ B | < 1.0 | 217 | |
| BOD ₅ | mg/l | 5210 B | < 1.0 | 2.5 | ≤ 20 |
| COD | mg/l | 5220 D | < 40.00 | 68.28 | ≤ 120 |

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khernchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG.NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 3. ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).
 4. - Not available.



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TEL. (662) 959-3600 FAX (662) 959-3535 Website: secot.co.th E-mail: envserv@secot.co.th

WATER AND WASTEWATER ANALYSIS REPORT

| | | | |
|------------------|-------------------------------|---------------------|-----------------------------|
| CLIENT NAME | : Glow Energy Public Co., Ltd | REQUEST SERVICE No. | : 1226/65 |
| SAMPLING BY | : SECOT Co., Ltd. | SAMPLING METHOD | : Grab |
| SAMPLING DATE | : 06/06/2022 | SAMPLING TIME | : 14.15 |
| RECEIVED DATE | : 07/06/2022 | ANALYTICAL DATE | : 07-14/06/2022 |
| REPORT DATE | : 14/06/2022 | SITE OPERATOR | : Mr. Chanatip Singkasemsak |
| SAMPLE CONDITION | : Normal | FILE CODE | : 222048_WW_June |

| PARAMETER | UNIT | ANALYSIS METHODS | ND (non-detectable) | STATION Holding Pond No.1 | STANDARD ^{1/} |
|------------------------|--------------------|------------------------|---------------------|---------------------------|------------------------|
| Flow Rate | m ³ /hr | | | 103 | |
| Temperature | °C | 2550 B | < 0.5 | 33.3 | ≤ 40 |
| pH | | 4500-H ⁺ B | < 0.10 | 7.87 | 5.5-9.0 |
| Color | ADMI | 2120 F | < 6.0 | 34.4 | ≤ 300 |
| Total Dissolved Solids | mg/l | 2540 C | < 50 | 1,832 | ≤ 3,000 |
| Total Suspended Solids | mg/l | 2540 D | < 5 | 6 | ≤ 50 |
| Fat Oil & Grease | mg/l | 5520 B | < 0.50 | ND | ≤ 5 |
| Free Chlorine | mg/l | 4500-Cl ⁻ G | < 0.03 | ND | ≤ 1 |
| Chloride | mg/l | 4500-Cl ⁻ B | < 1.0 | 195 | |
| BOD ₅ | mg/l | 5210 B | < 1.0 | 1.8 | ≤ 20 |
| COD | mg/l | 5220 D | < 40.00 | 53.42 | ≤ 120 |

REFERENCE : STANDARD METHODS FOR EXAMINATION OF WATER AND WASTEWATER 23rd ED. 2017 (AWWA APHA WEF)

Khemchuda Insorn

(Miss Khernchuda Insorn)

Analyst

REG. NO. 7-239-ก-5976

Araya Tipparuk

(Mrs. Araya Tipparuk)

Technical Management Team

REG.NO. 7-239-ก-5863

- Remark :**
1. Reported analysis refers to submitted sample only.
 2. This report shall not be reproduced, except in full, without official approval.
 3. ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E.2559 (2016).
 4. - Not available.

ภาคผนวก ง.5

ใบรับรองผลการตรวจวัดระดับเสียงบริเวณรอบโรงงาน



Noise Monitoring Result : Community Noise

MTR-Gas-Fired Cogeneration Power Plant & Utility Plant

Location : East fence of project site

Monitor Period : 18-25 Feb 2022

SLM Model : RION NL-21

Serial No : 00487719

Site Operator : Mr.Supakit Tamooka

Calibrator Model : RION NC-74

Serial No : 34283648

Calibration Ref dB(A) : 94.0

Certified Date : 24 Dec 2021

SLM Reading / Adjust dB(A) : 94.0/0.0

Expire Date : 23 Dec 2022

Cal Sheet No. : NC-74-2022-019

| Time | Equivalent Sound Pressure Level (dB(A)) | | | | | | |
|---------------|---|----------------|----------------|----------------|----------------|----------------|----------------|
| | 18-19 Feb 2022 | 19-20 Feb 2022 | 20-21 Feb 2022 | 21-22 Feb 2022 | 22-23 Feb 2022 | 23-24 Feb 2022 | 24-25 Feb 2022 |
| 11:00 - 12:00 | 64.8 | 64.6 | 66.1 | 66.3 | 65.2 | 65.6 | 65.4 |
| 12:00 - 13:00 | 64.8 | 65.0 | 65.8 | 66.3 | 65.4 | 65.4 | 65.3 |
| 13:00 - 14:00 | 64.9 | 66.0 | 65.8 | 65.8 | 65.4 | 65.1 | 65.4 |
| 14:00 - 15:00 | 64.8 | 66.0 | 65.4 | 66.0 | 66.0 | 65.1 | 65.2 |
| 15:00 - 16:00 | 64.9 | 66.2 | 65.4 | 65.9 | 65.8 | 65.5 | 65.6 |
| 16:00 - 17:00 | 64.9 | 66.4 | 65.7 | 65.5 | 65.5 | 66.0 | 65.5 |
| 17:00 - 18:00 | 65.0 | 66.3 | 65.9 | 65.7 | 65.2 | 65.9 | 65.3 |
| 18:00 - 19:00 | 65.7 | 66.2 | 67.5 | 66.1 | 65.2 | 66.0 | 65.4 |
| 19:00 - 20:00 | 72.9 | 66.5 | 66.6 | 66.1 | 65.5 | 66.3 | 66.1 |
| 20:00 - 21:00 | 67.1 | 66.6 | 66.3 | 66.3 | 65.6 | 66.0 | 66.4 |
| 21:00 - 22:00 | 66.9 | 66.5 | 66.3 | 66.5 | 66.0 | 66.3 | 66.4 |
| 22:00 - 23:00 | 64.7 | 66.5 | 66.2 | 66.3 | 65.6 | 65.9 | 66.3 |
| 23:00 - 00:00 | 64.3 | 66.5 | 65.9 | 66.2 | 65.7 | 65.9 | 66.3 |
| 00:00 - 01:00 | 64.3 | 66.4 | 66.0 | 65.9 | 65.6 | 66.2 | 66.6 |
| 01:00 - 02:00 | 64.3 | 66.4 | 66.0 | 66.0 | 65.6 | 66.0 | 66.3 |
| 02:00 - 03:00 | 64.4 | 66.4 | 65.9 | 66.0 | 65.7 | 65.7 | 66.3 |
| 03:00 - 04:00 | 64.4 | 66.4 | 65.8 | 65.8 | 65.6 | 65.7 | 66.2 |
| 04:00 - 05:00 | 66.8 | 66.4 | 65.9 | 65.8 | 65.8 | 65.7 | 66.1 |
| 05:00 - 06:00 | 64.2 | 66.4 | 65.9 | 66.0 | 66.0 | 65.7 | 66.1 |
| 06:00 - 07:00 | 64.5 | 66.5 | 66.2 | 66.1 | 66.0 | 65.7 | 65.9 |
| 07:00 - 08:00 | 64.6 | 66.9 | 66.1 | 66.5 | 66.0 | 66.0 | 65.9 |
| 08:00 - 09:00 | 64.7 | 66.4 | 66.1 | 66.4 | 66.1 | 65.9 | 66.1 |
| 09:00 - 10:00 | 64.7 | 66.3 | 65.4 | 65.5 | 65.8 | 66.0 | 66.5 |
| 10:00 - 11:00 | 65.0 | 66.4 | 65.2 | 65.4 | 65.4 | 66.1 | 66.1 |

| | | | | | | | |
|----------|-------|------|------|------|------|------|------|
| Leq(24)* | 65.9 | 66.3 | 66.0 | 66.0 | 65.7 | 65.8 | 66.0 |
| Ldn | 71.4 | 72.8 | 72.4 | 72.4 | 72.1 | 72.2 | 72.6 |
| Lmax ** | 100.7 | 88.2 | 93.2 | 84.8 | 84.2 | 83.1 | 84.4 |

Standard-24Hr 70 dB(A)
Standard-Max 115 dB(A)

Remark : * Average time between 11:00-11:00

** Maximum Sound Pressure Level between 11:00-11:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise

MTR-Gas-Fired Cogeneration Power Plant & Utility Plant

Location : East fence of project site

Monitor Period : 18-25 Feb 2022

SLM Model : RION NL-21

Serial No : 00487719

Site Operator : Mr.Supakit Tamooka

Calibrator Model : RION NC-74

Serial No : 34283648

Calibration Ref dB(A) : 94.0

Certified Date : 24 Dec 2021

SLM Reading / Adjust dB(A) : 94.0/0.0

Expire Date : 23 Dec 2022

Cal Sheet No. : NC-74-2022-019

| Time | L90 (dB(A)) | | | | | | |
|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 18-19 Feb 2022 | 19-20 Feb 2022 | 20-21 Feb 2022 | 21-22 Feb 2022 | 22-23 Feb 2022 | 23-24 Feb 2022 | 24-25 Feb 2022 |
| 11:00 - 12:00 | 64.2 | 64.2 | 65.8 | 66.1 | 64.8 | 65.0 | 64.9 |
| 12:00 - 13:00 | 64.3 | 64.2 | 65.5 | 65.8 | 64.9 | 64.8 | 64.8 |
| 13:00 - 14:00 | 64.5 | 65.3 | 65.3 | 65.5 | 65.1 | 64.5 | 64.4 |
| 14:00 - 15:00 | 64.3 | 65.6 | 65.2 | 65.7 | 65.3 | 64.7 | 64.8 |
| 15:00 - 16:00 | 64.4 | 65.8 | 65.0 | 65.2 | 65.3 | 64.8 | 64.9 |
| 16:00 - 17:00 | 64.4 | 65.9 | 65.3 | 65.1 | 64.8 | 65.4 | 64.9 |
| 17:00 - 18:00 | 64.7 | 66.0 | 65.5 | 65.4 | 64.7 | 65.4 | 64.9 |
| 18:00 - 19:00 | 65.0 | 65.9 | 66.0 | 65.8 | 64.7 | 65.6 | 65.0 |
| 19:00 - 20:00 | 66.1 | 66.2 | 66.2 | 65.7 | 64.9 | 66.0 | 65.4 |
| 20:00 - 21:00 | 66.3 | 66.3 | 65.9 | 66.0 | 65.2 | 65.6 | 65.9 |
| 21:00 - 22:00 | 65.7 | 66.3 | 66.1 | 66.1 | 65.6 | 65.4 | 65.9 |
| 22:00 - 23:00 | 64.3 | 66.3 | 65.9 | 66.0 | 65.4 | 65.1 | 65.9 |
| 23:00 - 00:00 | 64.0 | 66.2 | 65.6 | 65.9 | 65.3 | 65.5 | 66.1 |
| 00:00 - 01:00 | 64.0 | 66.1 | 65.7 | 65.6 | 65.2 | 65.9 | 66.1 |
| 01:00 - 02:00 | 64.0 | 66.2 | 65.8 | 65.7 | 65.3 | 65.7 | 66.0 |
| 02:00 - 03:00 | 64.1 | 66.2 | 65.7 | 65.8 | 65.3 | 65.3 | 66.1 |
| 03:00 - 04:00 | 64.1 | 66.2 | 65.6 | 65.6 | 65.3 | 65.2 | 65.9 |
| 04:00 - 05:00 | 64.1 | 66.2 | 65.6 | 65.6 | 65.4 | 65.2 | 65.7 |
| 05:00 - 06:00 | 63.8 | 66.2 | 65.7 | 65.8 | 65.7 | 65.2 | 65.8 |
| 06:00 - 07:00 | 64.0 | 66.2 | 65.9 | 65.8 | 65.7 | 65.3 | 65.7 |
| 07:00 - 08:00 | 64.1 | 66.3 | 65.8 | 65.8 | 65.6 | 65.7 | 65.6 |
| 08:00 - 09:00 | 64.1 | 66.1 | 65.4 | 66.0 | 65.6 | 65.5 | 65.7 |
| 09:00 - 10:00 | 64.0 | 66.0 | 65.1 | 65.2 | 65.1 | 65.4 | 66.1 |
| 10:00 - 11:00 | 64.3 | 65.9 | 64.9 | 65.0 | 64.8 | 65.3 | 65.7 |

| | | | | | | | |
|-----------|------|------|------|------|------|------|------|
| L90(avg)* | 64.5 | 65.9 | 65.6 | 65.7 | 65.2 | 65.3 | 65.5 |
|-----------|------|------|------|------|------|------|------|

Remark : * Average time between 11:00-11:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Environmental & Occupational Medicine Service
SLM Model : RION NL-21
Site Operator : Mr.Supakit Tamooka

Monitor Period : 18-25 Feb 2022
Serial No : 00187515

Calibrator Model : RION NC-74
Calibration Ref dB(A) : 94.0
SLM Reading / Adjust dB(A) : 94.0/0.0
Cal Sheet No. : NC-74-2022-019

| Time | Equivalent Sound Pressure Level (dB(A)) | | | | | | |
|---------------|---|----------------|----------------|----------------|----------------|----------------|----------------|
| | 18-19 Feb 2022 | 19-20 Feb 2022 | 20-21 Feb 2022 | 21-22 Feb 2022 | 22-23 Feb 2022 | 23-24 Feb 2022 | 24-25 Feb 2022 |
| 11:00 - 12:00 | 56.8 | 55.0 | 55.3 | 59.3 | 55.1 | 56.4 | 59.4 |
| 12:00 - 13:00 | 56.7 | 55.1 | 55.2 | 53.9 | 52.3 | 55.4 | 68.5 |
| 13:00 - 14:00 | 59.4 | 55.4 | 56.8 | 55.1 | 56.7 | 62.1 | 70.1 |
| 14:00 - 15:00 | 57.7 | 58.0 | 54.6 | 54.2 | 60.1 | 56.2 | 63.0 |
| 15:00 - 16:00 | 55.7 | 55.0 | 54.8 | 52.3 | 56.5 | 57.9 | 57.6 |
| 16:00 - 17:00 | 56.2 | 55.0 | 56.3 | 55.1 | 52.8 | 55.5 | 62.6 |
| 17:00 - 18:00 | 56.8 | 54.5 | 54.6 | 56.1 | 56.7 | 54.1 | 64.9 |
| 18:00 - 19:00 | 59.1 | 56.4 | 57.6 | 51.5 | 54.9 | 57.6 | 64.4 |
| 19:00 - 20:00 | 54.6 | 53.9 | 56.2 | 51.7 | 53.5 | 55.9 | 57.5 |
| 20:00 - 21:00 | 58.6 | 53.2 | 53.8 | 51.1 | 50.9 | 57.0 | 53.4 |
| 21:00 - 22:00 | 54.1 | 52.4 | 53.4 | 49.7 | 52.7 | 52.1 | 54.7 |
| 22:00 - 23:00 | 53.3 | 52.5 | 54.6 | 50.2 | 51.9 | 51.4 | 54.3 |
| 23:00 - 00:00 | 53.4 | 52.9 | 52.7 | 50.4 | 55.7 | 52.0 | 51.6 |
| 00:00 - 01:00 | 52.2 | 53.6 | 55.2 | 49.6 | 49.9 | 50.3 | 50.3 |
| 01:00 - 02:00 | 52.0 | 52.2 | 52.7 | 48.8 | 50.8 | 49.4 | 50.9 |
| 02:00 - 03:00 | 52.3 | 52.5 | 52.3 | 49.0 | 50.2 | 49.9 | 49.3 |
| 03:00 - 04:00 | 61.4 | 51.4 | 52.4 | 48.8 | 49.3 | 49.8 | 49.2 |
| 04:00 - 05:00 | 53.4 | 51.7 | 52.6 | 49.9 | 48.8 | 48.4 | 48.6 |
| 05:00 - 06:00 | 55.3 | 55.9 | 52.8 | 56.9 | 48.7 | 48.4 | 48.7 |
| 06:00 - 07:00 | 55.2 | 54.2 | 57.4 | 55.4 | 49.3 | 49.0 | 48.8 |
| 07:00 - 08:00 | 55.4 | 54.5 | 57.2 | 58.4 | 51.7 | 49.7 | 49.6 |
| 08:00 - 09:00 | 57.5 | 54.8 | 63.1 | 53.9 | 52.4 | 54.6 | 54.1 |
| 09:00 - 10:00 | 56.6 | 54.2 | 63.9 | 57.8 | 58.9 | 59.0 | 53.4 |
| 10:00 - 11:00 | 56.1 | 56.0 | 59.8 | 51.7 | 58.9 | 59.9 | 58.2 |
| Leq(24)* | 56.5 | 54.5 | 57.0 | 54.2 | 54.6 | 55.6 | 61.2 |
| Ldn | 62.2 | 59.9 | 61.3 | 59.1 | 58.6 | 58.5 | 62.3 |
| Lmax ** | 92.7 | 84.2 | 93.3 | 78.9 | 87.1 | 97.5 | 94.3 |
| Standard-24Hr | 70 dB(A) | | | | | | |
| Standard-Max | 115 dB(A) | | | | | | |

Remark : * Average time between 11:00-11:00

** Maximum Sound Pressure Level between 11:00-11:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Environmental & Occupational Medicine Service
SLM Model : RION NL-21
Site Operator : Mr.Supakit Tamooka

Monitor Period : 18-25 Feb 2022
Serial No : 00187515

Calibrator Model : RION NC-74
Calibration Ref dB(A) : 94.0
SLM Reading / Adjust dB(A) : 94.0/0.0
Cal Sheet No. : NC-74-2022-019

| Time | L90 (dB(A)) | | | | | | |
|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 18-19 Feb 2022 | 19-20 Feb 2022 | 20-21 Feb 2022 | 21-22 Feb 2022 | 22-23 Feb 2022 | 23-24 Feb 2022 | 24-25 Feb 2022 |
| 11:00 - 12:00 | 51.9 | 52.7 | 53.0 | 53.3 | 51.2 | 48.8 | 52.1 |
| 12:00 - 13:00 | 51.2 | 52.5 | 52.7 | 51.0 | 48.3 | 51.1 | 51.5 |
| 13:00 - 14:00 | 51.5 | 52.7 | 52.9 | 51.2 | 50.2 | 50.8 | 51.0 |
| 14:00 - 15:00 | 51.5 | 52.8 | 53.0 | 49.6 | 52.1 | 50.7 | 50.8 |
| 15:00 - 16:00 | 51.3 | 52.2 | 52.9 | 48.3 | 52.8 | 51.1 | 50.4 |
| 16:00 - 17:00 | 51.3 | 52.5 | 53.3 | 51.4 | 48.9 | 50.6 | 50.8 |
| 17:00 - 18:00 | 51.2 | 52.8 | 52.9 | 49.4 | 50.8 | 50.1 | 51.0 |
| 18:00 - 19:00 | 53.6 | 52.8 | 52.8 | 49.1 | 50.8 | 51.5 | 51.2 |
| 19:00 - 20:00 | 52.9 | 52.5 | 52.8 | 49.3 | 50.1 | 52.9 | 51.4 |
| 20:00 - 21:00 | 52.1 | 52.0 | 52.3 | 48.7 | 48.6 | 51.0 | 49.8 |
| 21:00 - 22:00 | 52.0 | 51.5 | 52.1 | 48.3 | 49.4 | 49.4 | 49.5 |
| 22:00 - 23:00 | 51.8 | 51.5 | 52.0 | 48.1 | 48.9 | 49.2 | 49.8 |
| 23:00 - 00:00 | 51.7 | 51.7 | 51.9 | 48.2 | 48.5 | 49.9 | 49.0 |
| 00:00 - 01:00 | 51.5 | 51.7 | 52.2 | 48.5 | 48.1 | 48.2 | 48.6 |
| 01:00 - 02:00 | 51.3 | 50.9 | 51.9 | 48.1 | 48.2 | 47.9 | 48.4 |
| 02:00 - 03:00 | 51.5 | 50.8 | 51.7 | 48.3 | 48.4 | 47.8 | 48.1 |
| 03:00 - 04:00 | 51.7 | 50.8 | 51.7 | 47.7 | 48.1 | 47.7 | 47.9 |
| 04:00 - 05:00 | 51.4 | 50.8 | 51.9 | 48.4 | 48.1 | 47.6 | 47.9 |
| 05:00 - 06:00 | 51.7 | 51.4 | 52.2 | 46.7 | 47.9 | 47.6 | 47.9 |
| 06:00 - 07:00 | 53.0 | 52.4 | 52.8 | 49.4 | 47.9 | 47.9 | 47.8 |
| 07:00 - 08:00 | 53.2 | 52.6 | 53.7 | 50.4 | 48.6 | 48.6 | 48.3 |
| 08:00 - 09:00 | 53.2 | 53.3 | 54.0 | 48.3 | 48.2 | 49.8 | 45.9 |
| 09:00 - 10:00 | 53.3 | 52.2 | 53.3 | 50.2 | 49.7 | 52.0 | 50.9 |
| 10:00 - 11:00 | 53.2 | 53.3 | 53.6 | 49.3 | 50.6 | 53.0 | 51.6 |
| L90(avg)* | 52.1 | 52.2 | 52.7 | 49.5 | 49.6 | 50.1 | 49.9 |

Remark : * Average time between 11:00-11:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Community Noise

MTR-Gas-Fired Cogeneration Power Plant & Utility Plant

Location : Takuan-Ao Pradu Community Monitor Period : 18-25 Feb 2022
 SLM Model : RION NL-21 Serial No : 00487723
 Site Operator : Mr.Supakit Tamooka

Calibrator Model : RION NC-74 Serial No : 34283648
 Calibration Ref dB(A) : 94.0 Certified Date : Dec 24 2021
 SLM Reading / Adjust dB(A) : 93.9/0.1 Expire Date : Dec 23 2022
 Cal Sheet No. : NC-74-2022-019

| Time | Equivalent Sound Pressure Level (dB(A)) | | | | | | |
|---------------|---|----------------|----------------|----------------|----------------|----------------|----------------|
| | 18-19 Feb 2022 | 19-20 Feb 2022 | 20-21 Feb 2022 | 21-22 Feb 2022 | 22-23 Feb 2022 | 23-24 Feb 2022 | 24-25 Feb 2022 |
| 14:00 - 15:00 | 50.9 | 45.8 | 47.1 | 54.2 | 47.8 | 53.0 | 56.2 |
| 15:00 - 16:00 | 55.1 | 54.0 | 51.2 | 55.3 | 54.6 | 51.1 | 49.7 |
| 16:00 - 17:00 | 47.2 | 48.6 | 49.2 | 58.6 | 54.5 | 50.5 | 51.1 |
| 17:00 - 18:00 | 55.2 | 50.3 | 49.9 | 55.4 | 51.2 | 55.2 | 54.5 |
| 18:00 - 19:00 | 55.4 | 63.1 | 68.0 | 46.1 | 53.0 | 57.5 | 54.0 |
| 19:00 - 20:00 | 50.4 | 45.3 | 42.3 | 62.2 | 62.0 | 59.9 | 53.6 |
| 20:00 - 21:00 | 46.4 | 45.7 | 47.2 | 41.3 | 41.0 | 59.5 | 60.2 |
| 21:00 - 22:00 | 42.7 | 44.2 | 41.7 | 68.5 | 41.4 | 49.6 | 44.9 |
| 22:00 - 23:00 | 47.4 | 44.3 | 45.5 | 46.2 | 40.5 | 49.0 | 44.2 |
| 23:00 - 00:00 | 41.0 | 40.8 | 54.0 | 40.1 | 41.1 | 42.6 | 42.5 |
| 00:00 - 01:00 | 42.2 | 38.8 | 44.7 | 41.1 | 43.7 | 42.1 | 42.6 |
| 01:00 - 02:00 | 42.9 | 42.1 | 43.5 | 45.1 | 46.8 | 42.1 | 42.6 |
| 02:00 - 03:00 | 52.4 | 40.5 | 41.9 | 45.4 | 43.8 | 40.3 | 41.8 |
| 03:00 - 04:00 | 55.5 | 46.5 | 40.5 | 44.5 | 45.3 | 40.3 | 40.9 |
| 04:00 - 05:00 | 51.8 | 47.9 | 44.2 | 44.7 | 44.4 | 44.7 | 47.7 |
| 05:00 - 06:00 | 64.5 | 50.4 | 47.9 | 47.5 | 46.3 | 42.0 | 46.9 |
| 06:00 - 07:00 | 60.5 | 63.0 | 62.9 | 62.4 | 58.1 | 47.3 | 48.9 |
| 07:00 - 08:00 | 52.1 | 50.9 | 53.2 | 57.2 | 59.9 | 59.9 | 59.4 |
| 08:00 - 09:00 | 50.3 | 51.4 | 50.3 | 52.6 | 52.6 | 54.2 | 53.7 |
| 09:00 - 10:00 | 50.0 | 53.0 | 52.6 | 52.4 | 53.7 | 53.5 | 54.3 |
| 10:00 - 11:00 | 51.5 | 51.6 | 53.2 | 51.4 | 56.4 | 51.3 | 54.7 |
| 11:00 - 12:00 | 56.8 | 57.8 | 55.9 | 55.0 | 56.9 | 52.4 | 55.9 |
| 12:00 - 13:00 | 47.1 | 51.3 | 55.9 | 52.5 | 53.7 | 53.3 | 51.0 |
| 13:00 - 14:00 | 46.0 | 46.3 | 55.0 | 52.7 | 53.7 | 53.7 | 62.4 |
| Leq(24)* | 54.7 | 54.2 | 56.6 | 57.7 | 54.1 | 53.8 | 54.5 |
| Ldn | 63.2 | 60.5 | 61.3 | 61.2 | 57.7 | 55.2 | 55.9 |
| Lmax ** | 92.3 | 81.7 | 83.0 | 89.8 | 83.8 | 82.0 | 80.3 |
| Standard-24Hr | 70 dB(A) | | | | | | |
| Standard-Max | 115 dB(A) | | | | | | |

Remark : * Average time between 14:00-14:00

** Maximum Sound Pressure Level between 14:00-14:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team



Noise Monitoring Result : Background Noise

MTR-Gas-Fired Cogeneration Power Plant & Utility Plant

Location : Takuan-Ao Pradu Community Monitor Period : 18-25 Feb 2022
 SLM Model : RION NL-21 Serial No : 00487723
 Site Operator : Mr.Supakit Tamooka

Calibrator Model : RION NC-74 Serial No : 34283648
 Calibration Ref dB(A) : 94.0 Certified Date : Dec 24 2021
 SLM Reading / Adjust dB(A) : 93.9/0.1 Expire Date : Dec 23 2022
 Cal Sheet No. : NC-74-2022-019

| Time | L90 (dB(A)) | | | | | | |
|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 18-19 Feb 2022 | 19-20 Feb 2022 | 20-21 Feb 2022 | 21-22 Feb 2022 | 22-23 Feb 2022 | 23-24 Feb 2022 | 24-25 Feb 2022 |
| 14:00 - 15:00 | 39.5 | 40.2 | 40.6 | 45.4 | 40.4 | 43.1 | 45.1 |
| 15:00 - 16:00 | 40.2 | 40.3 | 41.6 | 47.3 | 44.4 | 41.4 | 41.5 |
| 16:00 - 17:00 | 38.9 | 40.1 | 41.6 | 48.6 | 44.4 | 40.3 | 42.7 |
| 17:00 - 18:00 | 44.4 | 40.3 | 40.5 | 40.9 | 41.0 | 40.6 | 41.1 |
| 18:00 - 19:00 | 48.1 | 42.5 | 40.3 | 38.6 | 43.2 | 41.4 | 39.8 |
| 19:00 - 20:00 | 46.8 | 41.9 | 39.8 | 38.7 | 39.2 | 39.0 | 40.0 |
| 20:00 - 21:00 | 43.2 | 41.7 | 39.8 | 37.4 | 38.8 | 38.8 | 42.6 |
| 21:00 - 22:00 | 40.6 | 40.5 | 39.6 | 38.9 | 37.9 | 42.9 | 41.7 |
| 22:00 - 23:00 | 39.9 | 38.7 | 39.6 | 39.1 | 37.6 | 41.4 | 41.8 |
| 23:00 - 00:00 | 39.6 | 37.8 | 38.5 | 38.2 | 39.8 | 40.1 | 40.6 |
| 00:00 - 01:00 | 40.2 | 36.4 | 38.9 | 38.6 | 40.3 | 39.2 | 40.5 |
| 01:00 - 02:00 | 39.5 | 36.0 | 39.9 | 38.4 | 38.6 | 38.8 | 40.1 |
| 02:00 - 03:00 | 40.5 | 36.7 | 38.6 | 38.6 | 37.5 | 37.7 | 39.1 |
| 03:00 - 04:00 | 40.3 | 35.7 | 37.7 | 38.5 | 38.0 | 37.3 | 38.7 |
| 04:00 - 05:00 | 41.0 | 36.2 | 37.2 | 38.9 | 37.9 | 38.1 | 39.0 |
| 05:00 - 06:00 | 39.3 | 36.8 | 36.8 | 39.9 | 38.5 | 38.3 | 38.6 |
| 06:00 - 07:00 | 41.9 | 42.4 | 38.9 | 42.1 | 40.8 | 39.7 | 39.7 |
| 07:00 - 08:00 | 41.4 | 41.7 | 41.8 | 47.0 | 46.2 | 43.9 | 41.7 |
| 08:00 - 09:00 | 42.2 | 40.9 | 42.1 | 47.7 | 46.6 | 48.0 | 46.6 |
| 09:00 - 10:00 | 42.9 | 42.0 | 40.8 | 45.6 | 47.1 | 47.5 | 46.4 |
| 10:00 - 11:00 | 42.5 | 41.9 | 41.8 | 43.7 | 49.6 | 46.8 | 46.4 |
| 11:00 - 12:00 | 42.8 | 41.7 | 46.0 | 42.1 | 45.9 | 46.4 | 46.9 |
| 12:00 - 13:00 | 41.3 | 42.1 | 43.7 | 41.1 | 45.2 | 43.1 | 44.1 |
| 13:00 - 14:00 | 41.6 | 40.7 | 47.4 | 39.6 | 42.5 | 42.6 | 45.4 |
| L90(avg)* | 42.3 | 40.3 | 41.4 | 43.1 | 43.3 | 42.8 | 43.0 |

Remark : * Average time between 14:00-14:00

(Miss Katesarin Vorradetwittaya)
Environmental Scientist

Preeda S.
(Miss Preeda Somjai)
Technical Management Team

ภาคผนวก ง.6

ใบรับรองผลการตรวจวัดระดับเสียงภายในสถานประกอบการ



Noise Monitoring Result : Working Noise

MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Air Compressor Monitor Period : Mar 21, 2022
 SLM Model : CASELLA CEL-246 Serial No : 3173156
 Site Operator : Mr. Chanatip Singkasemsak

Calibrator Model : CASELLA CEL120/2 Serial No : 2839225
 Calibration Ref dB(A) : 114.0 Certified Date : Dec 24, 2021
 SLM Reading / Adjust dB(A) : 114.1/-0.1 Expire Date : Dec 23, 2022
 Cal Sheet No. : CEL120/2-2022-025

| Time | Equivalent Sound Pressure Level (dB(A)) | |
|---------------|---|--|
| | Mar 21, 2022 | |
| 00:00 - 01:00 | | |
| 01:00 - 02:00 | | |
| 02:00 - 03:00 | | |
| 03:00 - 04:00 | | |
| 04:00 - 05:00 | | |
| 05:00 - 06:00 | | |
| 06:00 - 07:00 | | |
| 07:00 - 08:00 | | |
| 08:00 - 09:00 | | |
| 09:00 - 10:00 | 70.6 | |
| 10:00 - 11:00 | 69.7 | |
| 11:00 - 12:00 | 68.0 | |
| 12:00 - 13:00 | 69.0 | |
| 13:00 - 14:00 | 69.3 | |
| 14:00 - 15:00 | 69.3 | |
| 15:00 - 16:00 | 68.6 | |
| 16:00 - 17:00 | 68.4 | |
| 17:00 - 18:00 | | |
| 18:00 - 19:00 | | |
| 19:00 - 20:00 | | |
| 20:00 - 21:00 | | |
| 21:00 - 22:00 | | |
| 22:00 - 23:00 | | |
| 23:00 - 24:00 | | |
| Leq(8)* | 69.2 | |
| Lmax ** | 86.4 | |
| Standard-8Hr | 90 dB(A) | |
| Standard-Max | 140 dB(A) | |

Remark : * Average time between 09:00-17:00

** Maximum Sound Pressure Level between 09:00-17:00

(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Sununta Sirawuttinanon)
 Technical Management Team



Noise Monitoring Result : Working Noise

MTR-Gas Fired Cogeneration Power Plant & Utility Plant

Location : Air Compressor Monitor Period : May 30, 2022
 SLM Model : CASELLA CEL-246 Serial No : 1443817
 Site Operator : Miss Tipsuda Wannakran

Calibrator Model : CASELLA CEL120/2 Serial No : 2839225
 Calibration Ref dB(A) : 114.0 Certified Date : Dec 24, 2022
 SLM Reading / Adjust dB(A) : 113.8/0.2 Expire Date : Dec 23, 2022
 Cal Sheet No. : CEL120/2-2022-062

| Time | Equivalent Sound Pressure Level (dB(A)) | |
|---------------|---|--|
| | May 30, 2022 | |
| 00:00 - 01:00 | | |
| 01:00 - 02:00 | | |
| 02:00 - 03:00 | | |
| 03:00 - 04:00 | | |
| 04:00 - 05:00 | | |
| 05:00 - 06:00 | | |
| 06:00 - 07:00 | | |
| 07:00 - 08:00 | | |
| 08:00 - 09:00 | | |
| 09:00 - 10:00 | 66.7 | |
| 10:00 - 11:00 | 67.4 | |
| 11:00 - 12:00 | 66.3 | |
| 12:00 - 13:00 | 66.2 | |
| 13:00 - 14:00 | 66.8 | |
| 14:00 - 15:00 | 67.4 | |
| 15:00 - 16:00 | 67.5 | |
| 16:00 - 17:00 | 66.7 | |
| 17:00 - 18:00 | | |
| 18:00 - 19:00 | | |
| 19:00 - 20:00 | | |
| 20:00 - 21:00 | | |
| 21:00 - 22:00 | | |
| 22:00 - 23:00 | | |
| 23:00 - 24:00 | | |
| Leq(8)* | 66.9 | |
| Lmax ** | 82.6 | |
| Standard-8Hr | 90 dB(A) | |
| Standard-Max | 140 dB(A) | |

Remark : * Average time between 09:00-17:00

** Maximum Sound Pressure Level between 09:00-17:00

(Miss Katesarin Vorradetwittaya)
 Environmental Scientist

(Miss Sununta Sirawuttinanon)
 Technical Management Team

ภาคผนวก ง.7

ใบรับรองผลการตรวจวัดระดับความร้อน
ภายในสถานประกอบการ



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800

239 RIMKLONGPRAPA ROAD, BANGSUE, BANGKOK 10800, THAILAND

TEL : +66(0) 2959-3600 FAX : +66(0) 2959-3535 E-mail : envserv@secot.co.th

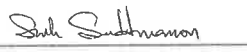
HEAT STRESS MEASUREMENT REPORT

CLIENT NAME : Glow Energy Public Co., Ltd. REFERENCE NO. : 222048-Heat (Cert.) Mar
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Area Heat Stress Monitor
MEASUREMENT DATE : 21/03/2022 MODEL NO. : QUESTEMP[®]34 SERIAL NO. : TEL070017
MEASUREMENT LOCATION : Gas-Fired Cogeneration Power Plant CALIBRATOR : Dry Well
SITE OPERATION : Mr. Chanatip Singkasemsak MODEL NO. : 9140 HDRC SERIAL NO. : AOA890

| LOCATION | TIME | MEASURED TEMPERATURE (°C) | | | | | STANDARD (°C) * |
|---------------|-------------|---------------------------|------|------|---------------------|---------------------|-----------------|
| | | NWB | DB | GT | WBGT _{Out} | WBGT _{Avg} | |
| HRSG 5-6 Area | 10.00-10.30 | 26.7 | 31.6 | 33.2 | 28.5 | 28.6 | 34.0 |
| | 10.30-11.00 | 26.7 | 31.6 | 33.2 | 28.5 | | |
| | 11.00-11.30 | 26.8 | 31.6 | 33.2 | 28.6 | | |
| | 11.30-12.00 | 26.9 | 31.7 | 33.3 | 28.7 | | |
| | | | | | | | |


(Miss Katesarin Vorradetwittaya)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. * WBGT Standard was notified by the Ministerial Regulations of Labour, B.E.2559 (2016).

4. NWB = Natural Wet Bulb Temperature

DB = Dry Bulb Temperature

GT = Globe Temperature

WBGT = Wet Bulb Globe Temperature

5. Work Load : Light work load = 34.0 °C, Moderate work load = 32.0 °C and Heavy work load = 30.0 °C



บริษัท ซีคอต จำกัด

SECOT CO., LTD.

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพฯ 10800


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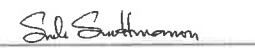
HEAT STRESS MEASUREMENT REPORT

CLIENT NAME : Glow Energy Public Co., Ltd. REFERENCE NO. : 222048-Heat (Cert.) May 22
MEASUREMENT BY : SECOT Co., Ltd. INSTRUMENT : Area Heat Stress Monitor
MEASUREMENT DATE : 30/05/2022 MODEL NO. : QUESTEMP[®]46 SERIAL NO. : TSN080002
MEASUREMENT LOCATION : Gas-Fired Cogeneration Power Plant SITE OPERATION : Ms. Thipsuda Wannakran

| LOCATION | TIME | MEASURED TEMPERATURE (°C) | | | | | STANDARD (°C) * |
|---------------|-------------|---------------------------|------|------|---------------------|---------------------|-----------------|
| | | NWB | DB | GT | WBGT _{Out} | WBGT _{Avg} | |
| HRSG 5-6 Area | 10.00-10.30 | 27.1 | 33.5 | 36.0 | 29.5 | 29.2 | 34.0 |
| | 10.30-11.00 | 27.1 | 33.4 | 33.5 | 29.0 | | |
| | 11.00-11.30 | 27.1 | 33.4 | 33.7 | 29.1 | | |
| | 11.30-12.00 | 27.2 | 33.6 | 33.7 | 29.1 | | |


(Miss Ladawan Wongcharoen)

Environmental Scientist


(Miss Sununta Sirawuttinanon)

Technical Management Team

Remark : 1. Reported analysis refers to submitted sample only.

2. This report shall not be reproduced, except in full, without official approval.

3. * WBGT Standard was notified by the Ministerial Regulations of Labour, B.E.2559 (2016).

4. NWB = Natural Wet Bulb Temperature

DB = Dry Bulb Temperature

GT = Globe Temperature

WBGT = Wet Bulb Globe Temperature

5. Work Load : Light work load = 34.0 °C, Moderate work load = 32.0 °C and Heavy work load = 30.0 °C

ภาคผนวก จ

ใบแสดงการตรวจเทียบเครื่องมือ



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Feb 3, 2022
 Hi-Vol Pump No. : BH-014 Indicator No. : CM-01
 Amb. Temp (°C) : 25 Press (mmHg) : 760
 Calibration by : Mr.Punkawin K.

| Plate | Indicate (X) (cm.) | True H ₂ O (in.) | Actual Flow (Y) (cfm) | XY | X ² | Remark |
|-------|-------------------------|----------------------------------|--------------------------|----------|----------------|--------|
| 18 | 17.60 | 12.60 | 59.07 | 1,039.70 | 309.80 | |
| 13 | 14.00 | 10.20 | 53.45 | 748.30 | 196.00 | |
| 10 | 11.20 | 7.80 | 46.90 | 525.30 | 125.40 | |
| 7 | 7.20 | 5.20 | 38.50 | 277.40 | 51.80 | |
| 5 | 4.00 | 3.10 | 30.04 | 120.20 | 16.00 | |
| Sum | 54.00 | 38.90 | 227.96 | 2,710.90 | 699.00 | |

Calibrated by : Punkawin Approved by : Wittaya K.



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 13, 2022
 Hi-Vol Pump No. : BH-010 Indicator No. : CM-01
 Amb. Temp (°C) : 25 Press (mmHg) : 760
 Calibration by : Mr.Punkawin K.

| Plate | Indicate (X) (cm.) | True H ₂ O (in.) | Actual Flow (Y) (cfm) | XY | X ² | Remark |
|-------|-------------------------|----------------------------------|--------------------------|----------|----------------|--------|
| 18 | 18.40 | 13.20 | 60.43 | 1,111.91 | 338.56 | |
| 13 | 14.60 | 10.40 | 53.96 | 787.82 | 213.16 | |
| 10 | 11.40 | 7.90 | 47.19 | 537.97 | 129.96 | |
| 7 | 7.60 | 5.20 | 38.53 | 292.83 | 57.76 | |
| 5 | 4.60 | 3.20 | 30.50 | 140.30 | 21.16 | |
| Sum | 56.60 | 39.90 | 230.61 | 2,870.82 | 760.60 | |

Calibrated by : Punkawin Approved by : Wittaya K.



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 14, 2022
 Hi-Vol Pump No. : BH-034 Indicator No. : CM-01
 Amb. Temp (°C) : 25 Press (mmHg) : 760
 Calibration by : Mr.Punkawin K.

| Plate | Indicate (X) (cm.) | True H ₂ O (in.) | Actual Flow (Y) (cfm) | XY | X ² | Remark |
|-------|-------------------------|----------------------------------|--------------------------|----------|----------------|--------|
| 18 | 18.40 | 13.00 | 59.98 | 1,103.63 | 338.56 | |
| 13 | 14.80 | 10.40 | 53.96 | 798.61 | 219.04 | |
| 10 | 11.40 | 8.00 | 47.48 | 541.27 | 129.96 | |
| 7 | 7.60 | 5.20 | 38.53 | 292.83 | 57.76 | |
| 5 | 4.40 | 3.20 | 30.50 | 134.20 | 19.36 | |
| Sum | 56.60 | 39.80 | 230.45 | 2,870.54 | 764.68 | |

Calibrated by : Runkawin Approved by : Wittaya K.



High Volume TSP & PM-10 Calibration Data Sheet

Calibration Location : SECOT Co.,Ltd. Calibration Date : Jan 14, 2022
 Hi-Vol Pump No. : BH-001 Indicator No. : CM-01
 Amb. Temp (°C) : 25 Press (mmHg) : 760
 Calibration by : Mr.Punkawin K.

| Plate | Indicate (X) (cm.) | True H ₂ O (in.) | Actual Flow (Y) (cfm) | XY | X ² | Remark |
|-------|-------------------------|----------------------------------|--------------------------|----------|----------------|--------|
| 18 | 17.40 | 12.60 | 59.07 | 1,027.82 | 302.76 | |
| 13 | 14.40 | 10.10 | 53.20 | 766.08 | 207.36 | |
| 10 | 11.40 | 7.80 | 46.90 | 534.66 | 129.96 | |
| 7 | 7.20 | 5.00 | 37.81 | 272.23 | 51.84 | |
| 5 | 4.40 | 3.00 | 226.60 | 997.04 | 19.36 | |
| Sum | 54.80 | 38.50 | 423.58 | 3,597.83 | 711.28 | |

Calibrated by : Runkawin Approved by : Wittaya K.

SHEET No.: 382_0122



Analyzer Performance Test

Date : 13 Jan 22

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

| | |
|-----------------|------|
| Analyzer Type : | SO2 |
| Brand : | API |
| Model : | M100 |
| S/N : | 382 |

| | |
|------------|---------------------|
| Dilutor : | Teledyne T 700 1367 |
| Zero Air : | M701 S/N 1039 |
| STD GAS : | EB0108319 |

Single Point Calibration

| Supply Gas | Ref Value | Analyzer Disp. | Zero-Span Error % | Slope - Offset |
|------------|-----------|----------------|-------------------|----------------|
| Zero | 0.00 | 1.00 | - | - |
| Span | 450.00 | 448.40 | -0.36 | 0.994 |

MultiPoint Calibration

| Ref Value | Analyzer Disp. | Output Difference | | |
|-----------|----------------|-------------------|------------------|-------------------|
| | | Diff | Percent Diff | Percent Diff abs. |
| 0.0 | 0.70 | 0.70 | - | - |
| 100.0 | 97.90 | -2.10 | -2.10 | 2.10 |
| 200.0 | 197.80 | -2.20 | -1.10 | 1.10 |
| 400.0 | 398.10 | -1.90 | -0.47 | 0.47 |
| | | | Average Diff (%) | 1.22 |

Calibrated by :

Approved by :

SHEET No.: 120_0122



Analyzer Performance Test

Date : 13 Jan 22

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

| | |
|-----------------|------|
| Analyzer Type : | SO2 |
| Brand : | API |
| Model : | T100 |
| S/N : | 120 |

| | |
|------------|---------------------|
| Dilutor : | Teledyne T 700 1367 |
| Zero Air : | M701 S/N 1039 |
| STD GAS : | EB0108319 |

Single Point Calibration

| Supply Gas | Ref Value | Analyzer Disp. | Zero-Span Error % | Slope - Offset |
|------------|-----------|----------------|-------------------|----------------|
| Zero | 0.00 | 1.00 | - | - |
| Span | 450.00 | 450.90 | 0.20 | 1.037 |

MultiPoint Calibration

| Ref Value | Analyzer Disp. | Output Difference | | |
|-----------|----------------|-------------------|------------------|-------------------|
| | | Diff | Percent Diff | Percent Diff abs. |
| 0.0 | 1.00 | 1.00 | - | - |
| 100.0 | 103.70 | 3.70 | 3.70 | 3.70 |
| 200.0 | 204.30 | 4.30 | 2.15 | 2.15 |
| 400.0 | 403.00 | 3.00 | 0.75 | 0.75 |
| | | | Average Diff (%) | 2.20 |

Calibrated by :

Approved by :

SHEET No.: 238_0122



Analyzer Performance Test

Date : 13 Jan 22

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

| | |
|-----------------|------|
| Analyzer Type : | SO2 |
| Brand : | API |
| Model : | M100 |
| S/N : | 238 |

| | |
|------------|---------------------|
| Dilutor : | Teledyne T 700 1367 |
| Zero Air : | M701 S/N 1039 |
| STD GAS : | EB0108319 |

Single Point Calibration

| Supply Gas | Ref Value | Analyzer Disp. | Zero-Span Error % | Slope - Offset |
|------------|-----------|----------------|-------------------|----------------|
| Zero | 0.00 | 0.70 | - | - |
| Span | 450.00 | 452.30 | 0.51 | 1.373 |

MultiPoint Calibration

| Ref Value | Analyzer Disp. | Output Difference | | |
|------------------|----------------|-------------------|--------------|-------------------|
| | | Diff | Percent Diff | Percent Diff abs. |
| 0.0 | 0.70 | 0.70 | - | - |
| 100.0 | 101.70 | 1.70 | 1.70 | 1.70 |
| 200.0 | 204.30 | 4.30 | 2.15 | 2.15 |
| 400.0 | 406.60 | 6.60 | 1.65 | 1.65 |
| Average Diff (%) | | | | 1.83 |

Calibrated by :

Approved by :

SHEET No.: 347_0122



Analyzer Performance Test

Date : 13 Jan 22

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

| | |
|-----------------|------|
| Analyzer Type : | SO2 |
| Brand : | API |
| Model : | M100 |
| S/N : | 347 |

| | |
|------------|---------------------|
| Dilutor : | Teledyne T 700 1367 |
| Zero Air : | M701 S/N 1039 |
| STD GAS : | EB0108319 |

Single Point Calibration

| Supply Gas | Ref Value | Analyzer Disp. | Zero-Span Error % | Slope - Offset |
|------------|-----------|----------------|-------------------|----------------|
| Zero | 0.00 | 0.80 | - | - |
| Span | 450.00 | 453.30 | 0.73 | 1.068 |

MultiPoint Calibration

| Ref Value | Analyzer Disp. | Output Difference | | |
|------------------|----------------|-------------------|--------------|-------------------|
| | | Diff | Percent Diff | Percent Diff abs. |
| 0.0 | 0.10 | 0.10 | - | - |
| 100.0 | 98.40 | -1.60 | -1.60 | 1.60 |
| 200.0 | 197.50 | -2.50 | -1.25 | 1.25 |
| 400.0 | 400.10 | 0.10 | 0.03 | 0.03 |
| Average Diff (%) | | | | 0.96 |

Calibrated by :

Approved by :

SHEET No.: 074_0122



NO Analyzer Performance Test

Date : 13 Jan 22

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

| | |
|-----------------|------|
| Analyzer Type : | No |
| Brand : | API |
| Model : | 200A |
| S/N : | 074 |

| | |
|------------|-------------------|
| Dilutor : | Teledyne 700E 587 |
| Zero Air : | M701 S/N 1044 |
| STD GAS : | EB0108319 |

NO Single Point Calibration

| Supply Gas | Ref Value | Analyzer Disp. | Zero-Span Error % | Slope - Offset |
|------------|-----------|----------------|-------------------|----------------|
| Zero | 0.0 | 0.2 | - | - |
| Span | 450.0 | 451.4 | 0.31 | 0.999 |

NO MultiPoint Calibration

| Ref Value | Analyzer Disp. | Output Difference | | |
|-----------|----------------|-------------------|------------------|-------------------|
| | | Diff | Percent Diff | Percent Diff abs. |
| 0.00 | 0.10 | 0.1 | - | - |
| 100.00 | 101.40 | 1.4 | 1.4 | 1.4 |
| 200.00 | 202.30 | 2.3 | 1.2 | 1.2 |
| 400.00 | 402.30 | 2.3 | 0.6 | 0.6 |
| | | | Average Diff (%) | 1.0 |

Calibrated by : W. H. K.Approved by : [Signature]

SECOT CO., LTD.
239 Rimklongprapa Rd., Bangsue, Bangkok 10800, THAILAND
Tel: (662) 9592600 Fax: (662) 9593535
E-Mail: envs@secot.co.th

SHEET No.: 074_0122



Nox Analyzer Performance Test

Date : 13 Jan 22

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

| | |
|-----------------|------|
| Analyzer Type : | Nox |
| Brand : | API |
| Model : | 200A |
| S/N : | 074 |

| | |
|------------|-------------------|
| Dilutor : | Teledyne 700E 587 |
| Zero Air : | M701 S/N 1044 |
| STD GAS : | EB0108319 |

NOx Single Point Calibration

| Supply Gas | Ref Value | Analyzer Disp. | Zero-Span Error % | Slope - Offset |
|------------|-----------|----------------|-------------------|----------------|
| Zero | 0.0 | 0.4 | - | - |
| Span | 450.0 | 452.4 | 0.53 | 1.001 |

NOx MultiPoint Calibration

| Ref Value | Analyzer Disp. | Output Difference | | |
|-----------|----------------|-------------------|------------------|-------------------|
| | | Diff | Percent Diff | Percent Diff abs. |
| 0.00 | 0.30 | 0.3 | - | - |
| 100.00 | 102.40 | 2.4 | 2.4 | 2.4 |
| 200.00 | 204.50 | 4.5 | 2.3 | 2.3 |
| 400.00 | 405.20 | 5.2 | 1.3 | 1.3 |
| | | | Average Diff (%) | 2.0 |

Calibrated by : W. H. K.Approved by : [Signature]

SECOT CO., LTD.
239 Rimklongprapa Rd., Bangsue, Bangkok 10800, THAILAND
Tel: (662) 9592600 Fax: (662) 9593535
E-Mail: envs@secot.co.th

SHEET No.: 1645_0122



NO Analyzer Performance Test

Date: 13 Jan 22

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

| | |
|-----------------|------|
| Analyzer Type : | No |
| Brand : | API |
| Model : | 200A |
| S/N : | 1645 |

| | |
|------------|-------------------|
| Dilutor : | Teledyne 700E 587 |
| Zero Air : | M701 S/N 1044 |
| STD GAS : | EB0108319 |

NO Single Point Calibration

| Supply Gas | Ref Value | Analyzer Disp. | Zero-Span Error % | Slope - Offset |
|------------|-----------|----------------|-------------------|----------------|
| Zero | 0.0 | 0.2 | - | - |
| Span | 450.0 | 447.0 | -0.67 | 0.993 |

NO MultiPoint Calibration

| Ref Value | Analyzer Disp. | Output Difference | | |
|-----------|----------------|-------------------|--------------|-------------------|
| | | Diff | Percent Diff | Percent Diff abs. |
| 0.00 | 0.20 | 0.2 | - | - |
| 100.00 | 97.60 | -2.4 | -2.4 | 2.4 |
| 200.00 | 195.20 | -4.8 | -2.4 | 2.4 |
| 400.00 | 397.60 | -2.4 | -0.6 | 0.6 |
| | | Average Diff (%) | | 1.8 |

Calibrated by : Witaya K.Approved by : [Signature]

SECOT CO., LTD.
239 Rimklongprapa Rd. Bangkok, 10600, THAILAND
Tel: (662) 5593602 Fax: (662) 9593335
E-Mail: envserv@secot.co.th

SHEET No.: 1645_0122



Nox Analyzer Performance Test

Date: 13 Jan 22

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

| | |
|-----------------|------|
| Analyzer Type : | Nox |
| Brand : | API |
| Model : | 200A |
| S/N : | 1645 |

| | |
|------------|-------------------|
| Dilutor : | Teledyne 700E 587 |
| Zero Air : | M701 S/N 1044 |
| STD GAS : | EB0108319 |

NOx Single Point Calibration

| Supply Gas | Ref Value | Analyzer Disp. | Zero-Span Error % | Slope - Offset |
|------------|-----------|----------------|-------------------|----------------|
| Zero | 0.0 | 0.2 | - | - |
| Span | 450.0 | 448.0 | -0.44 | 0.995 |

NOx MultiPoint Calibration

| Ref Value | Analyzer Disp. | Output Difference | | |
|-----------|----------------|-------------------|--------------|-------------------|
| | | Diff | Percent Diff | Percent Diff abs. |
| 0.00 | 0.20 | 0.2 | - | - |
| 100.00 | 98.10 | -1.9 | -1.9 | 1.9 |
| 200.00 | 197.40 | -2.6 | -1.3 | 1.3 |
| 400.00 | 399.10 | -0.9 | -0.2 | 0.2 |
| | | Average Diff (%) | | 1.1 |

Calibrated by : Witaya K.Approved by : [Signature]

SECOT CO., LTD.
239 Rimklongprapa Rd. Bangkok, 10600, THAILAND
Tel: (662) 5593602 Fax: (662) 9593335
E-Mail: envserv@secot.co.th

SHEET No.: 110_0122



Analyzer Performance Test

Date : 13 Jan 22

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

| | |
|-----------------|-------|
| Analyzer Type : | No |
| Brand : | API |
| Model : | T 200 |
| S/N : | 110 |

| | |
|------------|---------------------|
| Dilutor : | Teledyne T 700 1367 |
| Zero Air : | M701 S/N 1039 |
| STD GAS : | EB0108319 |

NO Single Point Calibration

| Supply Gas | Ref Value | Analyzer Disp. | Zero-Span Error % | Slope - Offset |
|------------|-----------|----------------|-------------------|----------------|
| Zero | 0.0 | 0.7 | - | - |
| Span | 450.0 | 449.7 | -0.07 | 0.933 |

NO MultiPoint Calibration

| Ref Value | Analyzer Disp. | Output Difference | | |
|-----------|----------------|-------------------|------------------|-------------------|
| | | Diff | Percent Diff | Percent Diff abs. |
| 0.00 | 0.70 | 0.7 | - | - |
| 100.00 | 105.80 | 5.8 | 5.8 | 5.8 |
| 200.00 | 204.20 | 4.2 | 2.1 | 2.1 |
| 400.00 | 402.30 | 2.3 | 0.6 | 0.6 |
| | | | Average Diff (%) | 2.8 |

Calibrated by :

Approved by :

SHEET No.: 110_0122



Analyzer Performance Test

Date : 13 Jan 22

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

| | |
|-----------------|-------|
| Analyzer Type : | Nox |
| Brand : | API |
| Model : | T 200 |
| S/N : | 110 |

| | |
|------------|---------------------|
| Dilutor : | Teledyne T 700 1367 |
| Zero Air : | M701 S/N 1039 |
| STD GAS : | EB0108319 |

NOx Single Point Calibration

| Supply Gas | Ref Value | Analyzer Disp. | Zero-Span Error % | Slope - Offset |
|------------|-----------|----------------|-------------------|----------------|
| Zero | 0.0 | 0.7 | - | - |
| Span | 450.0 | 449.6 | -0.09 | 0.933 |

NOx MultiPoint Calibration

| Ref Value | Analyzer Disp. | Output Difference | | |
|-----------|----------------|-------------------|------------------|-------------------|
| | | Diff | Percent Diff | Percent Diff abs. |
| 0.00 | 0.70 | 0.7 | - | - |
| 100.00 | 106.70 | 6.7 | 6.7 | 6.7 |
| 200.00 | 205.10 | 5.1 | 2.6 | 2.6 |
| 400.00 | 401.80 | 1.8 | 0.5 | 0.5 |
| | | | Average Diff (%) | 3.2 |

Calibrated by :

Approved by :

SHEET No.: 1523_0122



NO Analyzer Performance Test

Date : 13 Jan 22

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

| | |
|-----------------|------|
| Analyzer Type : | No |
| Brand : | API |
| Model : | 200A |
| S/N : | 1523 |

| | |
|------------|-------------------|
| Dilutor : | Teledyne 700E 587 |
| Zero Air : | M701 S/N 1044 |
| STD GAS : | EB0108319 |

NO Single Point Calibration

| Supply Gas | Ref Value | Analyzer Disp. | Zero-Span Error % | Slope - Offset |
|------------|-----------|----------------|-------------------|----------------|
| Zero | 0.0 | 0.3 | - | - |
| Span | 450.0 | 446.0 | -0.89 | 0.993 |

NO MultiPoint Calibration

| Ref Value | Analyzer Disp. | Output Difference | | |
|-----------|----------------|-------------------|--------------|-------------------|
| | | Diff | Percent Diff | Percent Diff abs. |
| 0.00 | 0.30 | 0.3 | - | - |
| 100.00 | 98.50 | -1.5 | -1.5 | 1.5 |
| 200.00 | 195.20 | -4.8 | -2.4 | 2.4 |
| 400.00 | 398.60 | -1.4 | -0.3 | 0.3 |
| | | Average Diff (%) | | 1.4 |

Calibrated by : Wittaya K.Approved by : [Signature]

SECOT CO., LTD.
239 Rimklangprapa Rd. Bangsue, Bangkok 10600, THAILAND
Tel: (662) 9593600 Fax: (662) 9593536
E-Mail: envserv@secot.co.th

SHEET No.: 1523_0122



Nox Analyzer Performance Test

Date : 13 Jan 22

Temp: (°C) 25

Barometric Pressure: Pb (mmHg) 760

| | |
|-----------------|------|
| Analyzer Type : | Nox |
| Brand : | API |
| Model : | 200A |
| S/N : | 1523 |

| | |
|------------|-------------------|
| Dilutor : | Teledyne 700E 587 |
| Zero Air : | M701 S/N 1044 |
| STD GAS : | EB0108319 |

NOx Single Point Calibration

| Supply Gas | Ref Value | Analyzer Disp. | Zero-Span Error % | Slope - Offset |
|------------|-----------|----------------|-------------------|----------------|
| Zero | 0.0 | 1.0 | - | - |
| Span | 450.0 | 448.0 | -0.44 | 0.995 |

NOx MultiPoint Calibration

| Ref Value | Analyzer Disp. | Output Difference | | |
|-----------|----------------|-------------------|--------------|-------------------|
| | | Diff | Percent Diff | Percent Diff abs. |
| 0.00 | 1.00 | 1.0 | - | - |
| 100.00 | 99.10 | -0.9 | -0.9 | 0.9 |
| 200.00 | 197.30 | -2.7 | -1.3 | 1.3 |
| 400.00 | 399.10 | -0.9 | -0.2 | 0.2 |
| | | Average Diff (%) | | 0.8 |

Calibrated by : Wittaya K.Approved by : [Signature]

SECOT CO., LTD.
239 Rimklangprapa Rd. Bangsue, Bangkok 10600, THAILAND
Tel: (662) 9593600 Fax: (662) 9593536
E-Mail: envserv@secot.co.th

CERTIFICATE OF ANALYSIS Grade of Product: EPA Protocol

Airgas Specialty Gases
600 Union Landing Road
Cinnaminson, NJ 08077
(856) 828-7878 Fax: (856) 828-6576
www.airgas.com

Part Number: E04NI99E15A0KDC Reference Number: 82-124380327-1
Cylinder Number: CC414868 Cylinder Volume: 144.4 Cubic Feet
Laboratory: ASG - Riverton - NJ Cylinder Pressure: 2015 PSIG
PGVP Number: B52013 Valve Outlet: 660
Gas Code: CO,NO,SO2,BALN Certification Date: Jul 15, 2013

Expiration Date: Jul 15, 2021

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

| ANALYTICAL RESULTS | | | | | |
|--------------------|-------------------------|----------------------|-----------------|----------------------------|------------------------|
| Component | Requested Concentration | Actual Concentration | Protocol Method | Total Relative Uncertainty | Assay Dates |
| NOX | 50.00 PPM | 52.49 PPM | G1 | +/- 1% NIST Traceable | 07/05/2013, 07/15/2013 |
| NITRIC OXIDE | 50.00 PPM | 52.46 PPM | G1 | +/- 1% NIST Traceable | 07/05/2013, 07/15/2013 |
| SULFUR DIOXIDE | 50.00 PPM | 50.64 PPM | G1 | +/- 1.0% NIST Traceable | 07/05/2013, 07/15/2013 |
| CARBON MONOXIDE | 0.5000 % | 0.4984 % | G1 | +/- 0.4% NIST Traceable | 07/07/2013 |
| NITROGEN | Balance | | | | |

| CALIBRATION STANDARDS | | | | | |
|-----------------------|--------------|-------------|-------------------------------------|-------------|-----------------|
| Type | Lot ID | Cylinder No | Concentration | Uncertainty | Expiration Date |
| NTRM | 13050232 | CC401984 | 4960 PPM CARBON MONOXIDE/NITROGEN | +/- 0.4% | Feb 15, 2019 |
| PRM | 12312 | 880179 | 10.01 PPM NITROGEN DIOXIDE/NITROGEN | +/- 2.0% | Feb 14, 2012 |
| NTRM | 12060813 | CC281093 | 49.95 PPM NITRIC OXIDE/NITROGEN | +/- 0.8% | Dec 16, 2017 |
| GMIS | 124206889106 | CC322664 | 4.879 PPM NITROGEN DIOXIDE/NITROGEN | +/- 2.0% | Apr 08, 2016 |
| NTRM | 12061632 | CC352180 | 60.10 PPM SULFUR DIOXIDE/NITROGEN | +/- 1.0% | Apr 24, 2018 |

The SRM or PRM noted above is only in reference to the GMIS used in the assay and not part of the analysis.

| ANALYTICAL EQUIPMENT | | |
|------------------------------------|----------------------|-----------------------------|
| Instrument/Make/Model | Analytical Principle | Last Multipoint Calibration |
| Siemens Ultramat 6 N1C8180 CO/HIGH | NDIR | Jul 08, 2013 |
| Nicolet 6700 APW1100391 NO | FTIR | Jun 24, 2013 |
| Nicolet 6700 APW1100391 NO2 | FTIR | Jun 24, 2013 |
| Nicolet 6700 APW1100391 SO2 | FTIR | Jul 10, 2013 |

Triad Data Available Upon Request

Notes:

C. Mochales

Approved for Release



CONTROL UNIT CALIBRATION (Metric units, mm)

Date: 13 Jan 22

Initial Final Average
Barometric press, Pb 759 759 759 mmHg

Dry Gas Meter Data

Reference Dry Gas Meter Data

Console No. M50-08

Serial No. 358794

Metering System ID

Model S110

DGM Number 971415

Correction factor (Yr) 0.9966

DGM Model ES-110

Last Calibration Date 8 Jan 22

Calibrated by: Montri P.

| Orifice manometer setting, ΔH mm H2O | Ref. DGM Volume V _r Liters | DGM Volume V _m Liters | Temperature (°C) | | | | Time Θ min | DGM Correction factor (Y) | ΔH@ mm |
|---|--|---|------------------------------|-------------------------|--------------------------|-----------------------|------------------|------------------------------------|-----------|
| | | | Ref DGM T _r | Dry Gas Meter | | | | | |
| | | | | Inlet T _i | Outlet T _o | Avg T _m | | | |
| 12.5 | 100.0 | 101.7 | 23 | 23 | 22 | 22.5 | 9.23 | 0.9771 | 49.1298 |
| 25.0 | 100.1 | 100.9 | 23 | 23 | 22 | 22.5 | 6.73 | 0.9847 | 52.1391 |
| 50.0 | 100.0 | 100.0 | 23 | 23 | 22 | 22.5 | 4.88 | 0.9902 | 55.0134 |
| 76.0 | 100.0 | 98.8 | 23 | 23 | 22 | 22.5 | 3.93 | 0.9997 | 54.2067 |
| 100.0 | 100.0 | 99.1 | 23 | 23 | 22 | 22.5 | 3.93 | 0.9945 | 52.8042 |
| 150.0 | 100.2 | 97.3 | 23 | 23 | 22 | 22.5 | 2.82 | 1.0099 | 54.6989 |

Average 0.9927 52.9987

Approved by: *(Signature)*
(Miss Katesarin Vorradetwittaya)

Sheet No. : CAL-M5009/01/22



CONTROL UNIT CALIBRATION

(Metric units, mm)

Date 14 Jan 22

Initial Final Average
Barometric press, Pb 758 758 758 mmHg

Dry Gas Meter Data

Console No. M50-09

Metering System ID

DGM Number 333249

DGM Model ES-110

Calibrated by : Montri P.

Reference Dry Gas Meter Data

Serial No. 358794

Model S110

Correction factor (Yr) 0.9966

Last Calibration Date 8 Jan 22

| Orifice manometer setting, ΔH mm H2O | Ref. DGM Volume V _r Liters | DGM Volume V _m Liters | Temperature (°C) | | | | Time ⊙ min | DGM Correction factor (Y) | ΔH@ mm |
|---|--|---|------------------------------|-------------------------|--------------------------|-----------------------|------------------|------------------------------------|-----------|
| | | | Ref DGM T _r | Dry Gas Meter | | | | | |
| | | | | Inlet T _i | Outlet T _o | Avg T _m | | | |
| 12.5 | 100.2 | 99.3 | 23 | 23 | 22 | 22.5 | 8.37 | 1.0022 | 40.2319 |
| 25.0 | 100.0 | 99.7 | 23 | 23 | 22 | 22.5 | 6.05 | 0.9955 | 42.2417 |
| 50.0 | 100.0 | 99.5 | 23 | 23 | 22 | 22.5 | 4.22 | 0.9953 | 41.0228 |
| 76.0 | 100.1 | 99.7 | 23 | 23 | 22 | 22.5 | 3.62 | 0.9918 | 45.7804 |
| 100.0 | 100.0 | 99.0 | 23 | 23 | 22 | 22.5 | 3.62 | 0.9953 | 46.8262 |
| 150.0 | 100.1 | 99.1 | 23 | 23 | 22 | 22.5 | 2.60 | 0.9900 | 46.7154 |
| Average | | | | | | | | 0.9950 | 43.8031 |

Approved by :
(Miss Katesarin Vorradetwittaya)

Sheet No. : CAL-PI-PS20-01/2022



PITOT TUBE CALIBRATION

Calibration Location: SECOT

Calibration Date : 14/01/2022

Calibrated duct No.: 1

Calibration Standard Pitot tube data

Pitot No. : Std-01

Coefficient (Cp) : 1

Type S Pitot No. : PS20-01

Calibrated by : Mr. Montri P.

A Side Calibration

| Run No. | ΔPstd (mm H ₂ O) | ΔPs (mm H ₂ O) | Cp(s) | Deviation, δ Cp(s) - Cp(A) |
|---------|--------------------------------|------------------------------|--------|-------------------------------|
| 1 | 7.55 | 10.50 | 0.8480 | 0.0066 |
| 2 | 7.55 | 10.75 | 0.8380 | -0.0033 |
| 3 | 7.55 | 10.75 | 0.8380 | -0.0033 |

C_{P(A),avg} 0.8414

B Side Calibration

| Run No. | ΔPstd (mm H ₂ O) | ΔPs (mm H ₂ O) | Cp(s) | Deviation, δ Cp(s) - Cp(B) |
|---------|--------------------------------|------------------------------|--------|-------------------------------|
| 1 | 7.55 | 10.75 | 0.8380 | -0.0033 |
| 2 | 7.55 | 10.75 | 0.8380 | -0.0033 |
| 3 | 7.55 | 10.50 | 0.8480 | 0.0066 |

C_{P(B),avg} 0.8414

|CP(A)-CP(B)| = 0.0000

C_{P(Avg)} = 0.8414

Approved by :
(Miss Katesarin Vorradetwittaya)

*** δ must be ≤ 0.01 for the test to be acceptable ***
*** |Cp(A)-Cp(B)| must also be ≤ 0.01 if average of Cp(A) and Cp(B) is to be used ***



Request Service No. 098/65

Page 1 of 3

Calibration Certificate

Nomenclature : Brand : Mettler Toledo Type : Top-Loading Electronic Balance

Model : AG245 Serial No. : 1117293916 (198129-0)

Submitted by : Laboratory of SECOT CO., LTD.

Location of Calibration : BAI, Room , 6th Floor, Secot Co., Ltd.

Calibration range : 0 – 200 g Scale division : 0.00001 g (41g) / 0.0001 g (210g)

Calibration date : May 26, 2022

Reference Standard No. M2110188S, M210183, M220177

Traceable to : Metrological Center SCI ECO Services Co., Ltd, THAI CALIBRATION SERVICES Co., Ltd

Ambient Condition : Temperature 24.28 – 24.42 °C

Humidity 48.10 – 50.90 % RH

Calibrated By : Sasipa Jaidee

(Miss Sasipa Jaidee)

Testing Officer

Date : 26/05/2022

Approved By : Siripa Jhannong

(Miss Siripa Jhannong)

Chief of Technical Management

Date : 26/05/2022

Issued Date : May 27, 2022

Measurement Report

Request Service No. 098/65

Page 2 of 3

Description: Brand : Mettler Toledo Type : Top-Loading Electronic Balance

Model : AG245 Serial No. : 1117293916 (198129-0)

Calibration range : 0 – 200 g Scale division : 0.00001 g (41g) / 0.0001 g (210g)

Calibration date : May 26, 2022

Ambient Condition : Temperature 24.28 – 24.42 °C Relative humidity 48.10 – 50.90 % RH

Measurement data :

1. Repeatability of Reading :

| Load (g) | Standard Deviation of Reading (g) | Maximum Difference between Successive Reading (g) |
|----------|-----------------------------------|---|
| 50 | 0.000047 | 0.0002 |
| 100 | 0.000067 | 0.0002 |
| 150 | 0.000048 | 0.0001 |
| 200 | 0.000052 | 0.0001 |

2. Off-Center Loading :

A Mass of 50.0000 g was placed and moved to various position on the pan.

Unit : g

| Center | Front | Left | Back | Right | Center | Maximum Difference |
|----------|----------|----------|----------|----------|----------|--------------------|
| 50.00020 | 50.00046 | 50.00030 | 50.00000 | 50.00010 | 50.00020 | 0.00026 |

Issued Date : May 27, 2022

3. Departure from Nominal Value :

| Reading (g) | Correction (g) | Uncertainty (+/- g) |
|-------------|----------------|---------------------|
| 0 | 0.000000 | ± 0.000008 |
| 0.5 | 0.000005 | ± 0.000014 |
| 1 | -0.000014 | ± 0.000018 |
| 10 | -0.000071 | ± 0.000034 |
| 20 | -0.000091 | ± 0.000047 |
| 40 | -0.000151 | ± 0.000074 |
| 60 | -0.00030 | ± 0.00012 |
| 80 | -0.00021 | ± 0.00014 |
| 100 | -0.00038 | ± 0.00016 |
| 120 | -0.00041 | ± 0.00018 |
| 140 | -0.00048 | ± 0.00021 |
| 160 | -0.00050 | ± 0.00023 |
| 180 | -0.00067 | ± 0.00025 |
| 200 | -0.00124 | ± 0.00027 |

Calibrated by : Sasipa Jaidee Approved By : [Signature]

(Miss Sasipa Jaidee)

(Miss Siripa Jhannong)

Testing Officer

Chief of Technical Management

Date : 26/05/2022Date : 26/05/2022

Issued Date : May 27, 2022



Calibration Certificate

Nomenclature : Brand : Sartorius Type : Top-Loading Electronic Balance

Model : BSA224S-CW Serial No. : 32191636

Submitted by : Laboratory of SECOT CO., LTD.

Location of Calibration : BAL Room , 6th Floor, Secot Co., Ltd.

Calibration range : 0 – 200 g Scale division : 0.0001 g (220 g)

Calibration date : May 24, 2022

Reference Standard No. M220177, M210183

Traceable to : Metrological Center SCI ECO Services Co., Ltd.

Ambient Condition : Temperature 24.80-24.90 °C

Humidity 50.4-52.9 % RH

Calibrated By : [Signature] Approved By : [Signature]

(Miss Khemchuda Insorn)

(Miss Siripa Jhannong)

Testing Officer

Chief of Technical Management

Date : 25/05/2022Date : 25/05/2022

Issued Date : May 25, 2022

Measurement Report

Request Service No.100/65

Page 2 of 3

Description : Brand : Sartorius Type : Top-Loading Electronic Balance

Model : BSA224S-CW Serial No. : 32191636

Calibration range : 0 – 200 g Scale division : 0.0001 g (220 g)

Calibration date : May 25,2021

Ambient Condition : Temperature 24.80-24.90 °C Relative humidity 50.4-52.9 % RH

Measurement data :

1. Repeatability of Reading :

| Load (g) | Standard Deviation of Reading (g) | Maximum Difference between Successive Reading (g) |
|----------|-----------------------------------|---|
| 50 | 0.00010 | 0.0003 |
| 100 | 0.00008 | 0.0003 |
| 150 | 0.00005 | 0.0001 |
| 200 | 0.00005 | 0.0001 |

2. Off-Center Loading :

A Mass of 50.0000 g was placed and moved to various position on the pan.

Unit : g

| Center | Front | Left | Back | Right | Center | Maximum Difference |
|----------|----------|----------|----------|----------|----------|--------------------|
| 49.99980 | 49.99984 | 49.99994 | 49.99986 | 49.99994 | 49.99980 | 0.00014 |

Issued Date : May 25,2022

Request Service No. 100/65

Page 3 of 3

3. Departure from Nominal Value :

| Reading (g) | Correction (g) | Uncertainty (+/- g) |
|-------------|----------------|---------------------|
| 0 | 0.00000 | ± 0.00008 |
| 1 | - 0.00004 | ± 0.00008 |
| 5 | +0.00013 | ± 0.00008 |
| 10 | +0.00018 | ± 0.00008 |
| 20 | +0.00009 | ± 0.00010 |
| 40 | -0.00005 | ± 0.00010 |
| 60 | +0.00012 | ± 0.00014 |
| 80 | +0.00017 | ± 0.00014 |
| 100 | -0.00020 | ± 0.00017 |
| 120 | +0.00003 | ± 0.00019 |
| 140 | +0.00004 | ± 0.00021 |
| 160 | +0.00006 | ± 0.00022 |
| 180 | +0.00004 | ± 0.00025 |
| 200 | +0.00002 | ± 0.00027 |

Calibrated by : *Khemchuda Insorn*

(Miss Khemchuda Insorn)

Testing Officer

Date : *25/05/2022*

Approved By : *Siripa Jhannong*

(Miss Siripa Jhannong)

Chief of Technical Management

Date : *25/05/2022*

Issued Date : May 25,2022



National Food Institute, Ministry of Industry, Thailand

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Calibration Certificate

Certificate No.: 2104065-001-01
Client name: SECOT CO., LTD.
Address: 239 Rimklongprapa Road,
 Bangsue, Bangsue, Bangkok 10800

Page 1 of 3

Equipment: CHAMBER (Hot Air Oven)
Manufacturer: BINDER
Model: ED 53
Serial No.: 01-27152
ID No.: N/A
Order No.: 2104065
Operation No.: 2104065-001
Date of Receipt: 2 August 2021
Date of Calibration: 2 August 2021

Calibrated by Mr. Worapob Sooktong
 Scientist

Approved by

(Mr. Pheraphat Tuanjit)

Manager, Division of Calibration Laboratory

Date of Issue: 3 August 2021

Responsible for the Technical Management Team

The uncertainties are for a confidence probability of approximately 95 %.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation scheme 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. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.



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Calibration Report

Certificate No.: 2104065-001-01
Equipment: CHAMBER (Hot Air Oven)
 Model: ED 53 Serial No.: 01-27152
 Resolution: 1 °C ID No.: N/A
 Manufacturer: BINDER

Date of Calibration: 2 August 2021

Page 2 of 3

Location: Laboratory, SECOT CO., LTD.
Environment Condition: Ambient Temperature (29 ± 1) °C
 Relative Humidity (59 ± 4) %
 Line Voltage (230 ± 0) Volt

Condition of this results of Calibration:

- This instrument was calibrated by insert 9 standard thermometer into its chamber and calibration according to W-TE-014 Based on TLAS G-20-1/02-08 (E): Guidelines for Calibration and Checks of Temperature Controlled Enclosures.
 - The temperature scale used was based on ITS - 90.
 - All data show below were final values and the initial data may be obtained upon request.
- Reference Standard Instrument :

| Instrument | Model | Serial No./ID No. | Certificate No. | Due Date | Through |
|---------------------------------|--------|-------------------------|-----------------|---------------|-------------------------|
| Digital Thermometer with sensor | 34972A | MY49016894 | TE 640400-01 | 24 April 2022 | NATIONAL FOOD INSTITUTE |
| | RTD | CH#101-109/ RTD#101-109 | | | |

- This certificate is traceable to International System of Units (SI Units).
- This certificate was certified only for the instrument we calibrated.
- This result of calibration was found accurate as shown on date and place of calibration only.
- Condition of Calibrated Item : Good

UUC Description :

Time of Record 1 Hour 9 Minute At 104, 110 and 180 °C

Fresh air Damper ☐ Open Position ☐
☒ Close
☐ Not Available

- Result of Calibration : ☒ Without adjustment ☐ After adjustment



National Food Institute, Ministry of Industry, Thailand



Calibration Report

Certificate No.: 2104065-001-01
Equipment: CHAMBER (Hot Air Oven)
Model: ED 53 **Serial No.:** 01-27152
Resolution: 1 °C **ID No.:** N/A
Manufacturer: BINDER

Date of Calibration: 2 August 2021

Page 3 of 3

Calibration point: 104, 110 and 180 °C

Calibration result:

| Calibration Condition | Temperature (°C) | Relative Humidity (%) | Line Voltage (Volt) |
|-----------------------|------------------|-----------------------|---------------------|
| MIN | 29.3 | 55 | 229.1 |
| MAX | 29.5 | 62 | 230.0 |



Table1 : Reporting of Temperature

| Calibration point (°C) | Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF) | | | | | | | | | Uncertainty ± (°C) |
|------------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------------------|
| | # 1 | # 2 | # 3 | # 4 | # 5 | # 6 | # 7 | # 8 | # 9 | |
| 104 | 104.51 | 104.81 | 104.21 | 104.35 | 103.34 | 103.28 | 103.34 | 103.03 | 103.28 | 0.82 |
| 110 | 110.80 | 111.16 | 110.51 | 110.64 | 109.63 | 109.64 | 109.63 | 109.34 | 109.58 | 0.83 |
| 180 | 181.02 | 181.32 | 180.02 | 180.44 | 179.66 | 179.95 | 179.64 | 179.40 | 179.70 | 0.95 |

Table 2 : Reporting of Characterization Result

| UUC* Setting (°C) | UUC* reading (°C) | | | Stability ± (°C) | Uniformity (°C) | Overall Variation (°C) |
|-------------------|-------------------|-----|---------|------------------|-----------------|------------------------|
| | MIN | MAX | Average | | | |
| 103 | 103 | 103 | 103 | 0.21 | 1.71 | 2.11 |
| 109 | 109 | 109 | 109 | 0.21 | 1.78 | 2.12 |
| 176 | 176 | 176 | 176 | 0.31 | 2.05 | 2.51 |

Note The quoted uncertainty include " Stability " and " Loading effect (20% of Temp Uniformity) "

UUC* = Unit Under Calibration

Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.

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.

Overall Variation = The difference of the maximum and minimum measured temperatures throughout observation time.

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

----- End -----

AK



Foundation for Industrial Development National Food Institute
 Food Industrial Laboratory Service Center



Calibration Certificate

Certificate No.: 2203078-001-01
Client name: SECOT CO., LTD.
Address: 239 Rimklongprap Road, Bangsue, Bangsue, Bangkok 10800

Page 1 of 3

Equipment: CHAMBER (Hot Air Oven)

Manufacturer: MEMMERT

Model: UF 55

Serial No.: B213.0295

ID No.: N/A

Order No.: 2203078

Operation No.: 2203078-001

Date of Receipt: 31 May 2022

Date of Calibration: 31 May 2022

Calibrated by Mr.Pheraphat Tuanjit
 Scientist

Approved by
 (Mr.Manas Somsak)

Specialist, Division of Calibration Laboratory
 Responsible for the Technical Management Team

Date of Issue: 8 June 2022

The uncertainties are for a confidence probability of approximately 95 %.

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Calibration Report

| | | | |
|-------------------------|------------------------|---------|-----------------------|
| Certificate No.: | 2203078-001-01 | | |
| Equipment: | CHAMBER (Hot Air Oven) | | |
| | Model: | UF 55 | Serial No.: B213.0295 |
| | Resolution: | 0.1 °C | ID No.: N/A |
| | Manufacturer: | MEMMERT | |

Date of Calibration: 31 May 2022

Page 2 of 3

Location: Walkway Laboratory, SECOT CO., LTD.

Environment Condition:

| | | |
|---------------------|-------------|------|
| Ambient Temperature | (32 ± 1) | °C |
| Relative Humidity | (56 ± 3) | % |
| Line Voltage | (222 ± 1) | Volt |

Condition of this results of Calibration:

1. This instrument was calibrated by insert 9 standard thermometer into its chamber and calibration according to W-TE-014 Based on TLAS G-20-1/02-08 (E): Guidelines for Calibration and Checks of Temperature Controlled Enclosures.
- The temperature scale used was based on ITS - 90.
 - All data show below were final values and the initial data may be obtained upon request.

| Instrument | Model | Serial No./ID No. | Certificate No. | Due Date | Through |
|------------------------------------|--------|-------------------------|-----------------|---------------|----------------------------|
| Digital Thermometer with sensor | 34972A | MY49010812 | TE 650377-01 | 28 April 2023 | NATIONAL FOOD INSTITUTE |
| | RTD | CH#101-109/ RTD#101-109 | | | |

3. This certificate is traceable to International System of Units (SI Units).
4. This certificate was certified only for the instrument we calibrated.
5. This result of calibration was found accurate as shown on date and place of calibration only.
6. Condition of Calibrated item : Good

UUC Description ;

Time of Record 1 Hour 9 Minute At 80.0, 104.0 and 180.0 °C

Fresh air Damper ☐ Open Position ☐

X Close

| | |
|--|---------------|
| | Not Available |
|--|---------------|

7. Result of Calibration : ☒ Without adjustment ☐ After adjustment



Calibration Report

| | | | |
|-------------------------|------------------------|---------|-----------------------|
| Certificate No.: | 2203078-001-01 | | |
| Equipment: | CHAMBER (Hot Air Oven) | | |
| | Model: | UF 55 | Serial No.: B213.0295 |
| | Resolution: | 0.1 °C | ID No.: N/A |
| | Manufacturer: | MEMMERT | |

Date of Calibration: 31 May 2022

Page 3 of 3

Calibration point: 80,0, 104,0 and 180,0 °C

| Calibration Condition | Temperature (°C) | Relative Humidity (%) | Line Voltage (Volt) |
|-----------------------|------------------|-----------------------|---------------------|
| MIN | 31.3 | 53 | 221.3 |
| MAX | 33.1 | 58 | 222.5 |

Table1 : Reporting of Temperature

| Calibration point (°C) | Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF) | | | | | | | | | Uncertainty ± (°C) |
|---------------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|-----------------------|
| | # 1 | # 2 | # 3 | # 4 | # 5 | # 6 | # 7 | # 8 | # 9 | |
| 80.0 | 79.74 | 79.77 | 79.76 | 79.74 | 79.77 | 79.68 | 79.58 | 79.84 | 79.79 | 0.46 |
| 104.0 | 103.88 | 103.92 | 103.93 | 103.94 | 103.96 | 103.74 | 103.69 | 104.14 | 103.99 | 0.53 |
| 180.0 | 179.55 | 179.70 | 179.79 | 179.89 | 179.82 | 179.65 | 179.65 | 180.48 | 179.92 | 0.90 |

Table 2 : Reporting of Characterization Result

| UUC* Setting (°C) | UUC* reading (°C) | | | Stability ± (°C) | Uniformity (°C) | Overall Variation (°C) |
|----------------------|-------------------|-------|---------|---------------------|--------------------|---------------------------|
| | MIN | MAX | Average | | | |
| 80.0 | 80.0 | 80.0 | 80.0 | 0.055 | 0.28 | 0.37 |
| 104.0 | 104.0 | 104.0 | 104.0 | 0.087 | 0.37 | 0.59 |
| 180.0 | 179.9 | 180.1 | 180.0 | 0.46 | 0.66 | 1.69 |

Note The quoted uncertainty include " Stability " and " Loading effect (20% of Temp Uniformity) "

UUC* = Unit Under Calibration

Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors,
for at least half an hour after reaching steady state.

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.

Overall Variation = The difference of the maximum and minimum measured temperatures throughout observation time.

The report uncertainty of measurement was based on standard uncertainty multiplied by coverage factor $k = 2$, providing a level of confidence of approximately 95 %.

End




Calibration Certificate

Certificate No.: 2203078-002-01
Client name: SECOT CO., LTD.
Address: 239 Rimklongprapa Road, Bangsue,
 Bangsue, Bangkok 10800

Page 1 of 3

Equipment: CHAMBER (Hot Air Oven)
Manufacturer: MEMMERT
Model: UM 400
Serial No.: B419.1400
ID No.: N/A
Order No.: 2203078
Operation No.: 2203078-002
Date of Receipt: 31 May 2022
Date of Calibration: 31 May 2022

Calibrated by Mr.Pheraphat Tuanjit
 Scientist

Approved by 
 (Mr.Manas Somsak)
 Specialist, Division of Calibration Laboratory
 Responsible for the Technical Management Team

Date of Issue: 8 June 2022

The uncertainties are for a confidence probability of approximately 95 %.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation scheme 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. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

F-CS-009 Revision: 01 Date: 20-04-65



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Calibration Report

Certificate No.: 2203078-002-01
Equipment: CHAMBER (Hot Air Oven)
 Model: UM 400 Serial No.: B419.1400
 Resolution: 1 °C ID No.: N/A
 Manufacturer: MEMMERT

Date of Calibration: 31 May 2022

Page 2 of 3

Location: Walkway Laboratory, SECOT CO., LTD.
Environment Condition: Ambient Temperature (32 ± 1) °C
 Relative Humidity (56 ± 3) %
 Line Voltage (222 ± 1) Volt

Condition of this results of Calibration:

- This Instrument was calibrated by insert 9 standard thermometer into its chamber and calibration according to W-TE-014 Based on TLAS G-20-1/02-08 (E): Guidelines for Calibration and Checks of Temperature Controlled Enclosures.
 - The temperature scale used was based on ITS - 90.
 - All data show below were final values and the initial data may be obtained upon request.
- Reference Standard Instrument :

| Instrument | Model | Serial No./ID No. | Certificate No. | Due Date | Through |
|---------------------------------|--------|-------------------------|-----------------|---------------|-------------------------|
| Digital Thermometer with sensor | 34972A | MY49010812 | TE 650377-01 | 28 April 2023 | NATIONAL FOOD INSTITUTE |
| | RTD | CH#201-209/ RTD#201-209 | | | |

- This certificate is traceable to International System of Units (SI Units).
- This certificate was certified only for the instrument we calibrated.
- This result of calibration was found accurate as shown on date and place of calibration only.
- Condition of Calibrated item : Good

UUC Description :

Time of Record 1 Hour 9 Minute At 150 °C
 Fresh air Damper ☐ Open Position ☐
☒ Close
☐ Not Available

7. Result of Calibration : ☒ Without adjustment ☐ After adjustment

F-CS-012 Revision: 01 Date: 20-04-65



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B 0268832



Cert. No.: 21H1810
Page.: 2 of 2

This instrument was connected with humidity/temperature probe Serial No. Q858886.

Result of Calibration:-

Before Adjustment

| Function: Humidity measurement | | | | |
|--------------------------------|-------------------|--------------|---------|----------------------------|
| Reference Temperature | Standard Humidity | UUC* Reading | Error | Uncertainty of Measurement |
| (°C) | (%R.H.) | (%R.H.) | (%R.H.) | (±%R.H.) |
| 25.0 | 40.1 | 43.90 | 3.80 | 1.3 |
| 25.0 | 50.1 | 52.20 | 2.10 | 1.6 |
| 25.0 | 60.0 | 60.17 | 0.17 | 1.6 |

Result of Calibration:-

After Adjustment

| Function: Humidity measurement | | | | |
|--------------------------------|-------------------|--------------|---------|----------------------------|
| Reference Temperature | Standard Humidity | UUC* Reading | Error | Uncertainty of Measurement |
| (°C) | (%R.H.) | (%R.H.) | (%R.H.) | (±%R.H.) |
| 25.0 | 40.1 | 42.08 | 1.98 | 1.3 |
| 25.0 | 50.1 | 50.58 | 0.48 | 1.6 |
| 25.0 | 60.0 | 58.55 | -1.45 | 1.6 |

Result of Calibration:-

Without Adjustment

| Function: Temperature measurement | | | | |
|-----------------------------------|--------------|-------|----------------------------|--|
| Standard Temperature | UUC* Reading | Error | Uncertainty of Measurement | |
| (°C) | (°C) | (°C) | (±°C) | |
| 20.01 | 20.34 | 0.33 | 0.42 | |
| 24.97 | 25.20 | 0.23 | 0.42 | |
| 29.98 | 30.15 | 0.17 | 0.42 | |

UUC* : Unit Under Calibration

The reported uncertainty of measurement was based on standard uncertainty multiplied by coverage factor $k = 2.00$, providing confidence level approximately 95%.

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[Signature]

a 1070214

CAL

Calibratech Co.,Ltd.

7/06-7 Moo 2, Sukhaphrachon 3 Rd., Bangpoed, Pakkred, Nonthaburi 11120

Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.co.ltd@yahoo.com, calibratech.co.ltd@hotmail.com



Certificate of Calibration

Certificate No. : 65-420016-1

Page : 1 of 2

Submitted by :

Secot Co.,Ltd.

239 RimKlongprapa Road, Bangsue, Bangkok 10800 Thailand

Equipment :

pH Meter with electrode

pH meter

Manufacturer : Mettler Toledo Model : Seven2Go S2

Range : N/A pH Resolution : 0.01 pH

Serial No. : B924795409 ID No. : N/A

Electrode

Model : InLab Expert Go-ISM Serial No. : 7861180

Environment :

Ambient Temperature : $(25 \pm 2) ^\circ\text{C}$

Relative Humidity : $(50 \pm 15) \%$

Date of Received :

15 February 2022

Date of Calibration :

24 February 2022

Date of Issue :

24 February 2022

Calibrated by :

Bunjerd Masri

Calibration Method : In-house method CAL-M4201 direct measurement by using standard voltage calibrator and using certified reference material (CRM)

Reference Standard Instruments : This certification is traceable to the International System of Units

1. Multiproduct Calibrator

| ID No. | Cert. No. | Due Date | Traceability |
|--------|-----------|-------------|---|
| 440001 | 21E997 | 17 Mar 2023 | National Institute of Metrology Thailand (NIMT) |

2. Standard Buffer Solution

| pH | Cert. No. | Lot No. | Exp. Date | Traceability |
|--------|-----------|---------|-------------|---|
| 4.008 | 61235182 | 795894 | 14 Feb 2024 | CPA Chem Ltd. Accredited to ISO 17034 and ISO/IEC 17025 |
| 6.985 | 61223875 | 769927 | 15 May 2022 | CPA Chem Ltd. Accredited to ISO 17034 and ISO/IEC 17025 |
| 10.008 | 61244986 | 795895 | 25 Feb 2023 | CPA Chem Ltd. Accredited to ISO 17034 and ISO/IEC 17025 |

Approved by :

(Bunjerd Masri)

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

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CAL-P0031-03



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7/106-7 Moo 2, Sukhaphrasan 3 Rd., Banggood, Pakkred, Nonthaburi 11120

Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

Certificate of Calibration

Certificate No. : 65-420016-1

Page : 2 of 2

Result of Calibration :

UUC Condition As-Received : Good

Function : Electrical measurement

pH meter

Performing standard curve by Multiproduct Calibrator at pH (4,7,10)

| Adjustment Curve at nominal pH | Applied Voltage (mV) | Nominal Value (pH) | UUC Reading | | Correction (mV) | Uncertainty (± mV) |
|-----------------------------------|---------------------------|-------------------------|-------------|--------|----------------------|-------------------------|
| | | | (pH) | (mV) | | |
| 4, 7, 10 | 177.4800 | 4 | 4.00 | 177 | 0 | 0.58 |
| | 0.9000 | 7 | 7.00 | 0 | 0 | 0.58 |
| | -177.4800 | 10 | 10.00 | -177 | 0 | 0.58 |

Function : pH meter with electrode

Performing a three - buffer standard curve using buffer nominal pH (4,7,10)

| Adjustment Curve at nominal pH | Standard Buffer (pH) | UUC Reading (pH) | Correction (pH) | Uncertainty (± pH) |
|-----------------------------------|---------------------------|-----------------------|----------------------|-------------------------|
| 4, 7, 10 | 4.008 | 4.01 | 0.00 | 0.010 |
| | 6.985 | 7.00 | -0.01 | 0.011 |
| | 10.008 | 10.01 | 0.00 | 0.014 |

Remark

UUC : Unit Under Calibration

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95%

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CAL

Calibratech Co.,Ltd.

7/106-7 Moo 2, Sukhaphrasan 3 Rd., Banggood, Pakkred, Nonthaburi 11120

Tel.(02) 964-6211 Fax.(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

Certificate of Calibration

Certificate No. : 65-400086-1

Page : 1 of 2

Submitted by :

Secot Co.,Ltd.

239 RimKlongprapa Road, Bangsue, Bangkok 10800 Thailand

Equipment :

Digital Thermometer with Thermistor Probe

Temperature Indicator

Manufacturer : Mettler Toledo

Model : Seven2Go S2

Range : N/A

Resolution : 0.1 °C

Serial No. : B924795409

ID No. : N/A

Thermistor Probe

Model : InLab Expert Go-ISM

Sheath Material : Plastic

Diameter : 10 mm.

Length : 120 mm.

Serial No. : 7861180

ID No. : N/A

Environment :

Ambient Temperature : (23 ± 2) °C

Relative Humidity : (50 ± 15) %

Line Voltage : (220 ± 22) VAC

Date of Received :

15 February 2022

Date of Calibration :

24 February 2022

Date of Issue :

24 February 2022

Calibrated by :

Bunjerd Masri

Calibration Method : This instrument was calibrated by In-house method comparison technique CAL-M4003 by compared with PRT in the liquid bath at the constant controlled temperature.

The temperature scale used was based on ITS-90

Reference Standard Instruments : This certification is traceable to the International System of Units

1. Platinum Resistance Thermometer (PRT)

| ID No. | Cert. No. | Due Date | Traceability |
|--------|-----------|----------|--------------|
|--------|-----------|----------|--------------|

| | | | |
|--------|------------|-------------|---|
| 400016 | TT-0059-21 | 02 Jun 2023 | National Institute of Metrology Thailand (NIMT) |
|--------|------------|-------------|---|

2. Standard Digital Thermometer

| ID No. | Cert. No. | Due Date | Traceability |
|--------|-----------|----------|--------------|
|--------|-----------|----------|--------------|

| | | | |
|--------|---------|-------------|---|
| 400003 | 21E1850 | 14 Jun 2023 | National Institute of Metrology Thailand (NIMT) |
|--------|---------|-------------|---|

| | | | |
|--------|---------|-------------|---|
| 400004 | 21E1850 | 14 Jun 2023 | National Institute of Metrology Thailand (NIMT) |
|--------|---------|-------------|---|

Approved by :

(Bunjerd Masri)

Supervisor

The Uncertainties are for a confidence probability of approximately 95%

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7/106-7 Moo 2, Sukhprachasan 3 Rd., Banggood, Pakkred, Nonthaburi 11120

Tel:(02) 964-6211 Fax:(02) 964-5155, e-mail : calibratech.cal@yahoo.com, calibratech.cal@hotmail.com

Certificate of Calibration

Certificate No. : 65-40086-1

Page : 2 of 2

Result of Calibration : Without Adjustment

UUC Condition As-Received : Good

Function : Temperature measurement

| Immersion Depth (mm.) | Standard Reading (°C) | UUC Reading (°C) | Correction (°C) | Uncertainty (± °C) |
|----------------------------|----------------------------|-----------------------|----------------------|-------------------------|
| 100 | 25.0042 | 25.0 | 0.0 | 0.12 |
| 100 | 30.0036 | 30.0 | 0.0 | 0.12 |
| 100 | 35.0050 | 35.0 | 0.0 | 0.12 |

Remark

UUC : Unit Under Calibration

This result of calibration was found accurate as shown on date and place of calibration only.

This reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor $k = 2$,

providing a level of confidence of approximately 95%

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
514/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL. 0-2717-3092-37 FAX. 0-2719-8483



Cert.No.: 21CH1690

Page.: 1 of 2

Certificate of Calibration

Equipment : Conductivity Meter
Manufacturer : Hanna
Model : HI98192
Serial No. : 05200045101
ID No. : -
Condition As-Received: Used Item
Received Date : 07 December 2021
Calibration Date : 13 December 2021
Reference : 2112-0144DN-2
Submitted by : Secot Co.,Ltd.
239 Rimklongprapa Road,
Bangsue, Bangkok 10800
Ambient Temperature : (25 ± 2.5) °C
Relative Humidity : (50 ± 15) %
Calibration Procedure: In -house method :
- CP-CH6 : based on direct measurement by
using certified reference material (CRM)
Calibrated by : Walailak Sirthean
Approved by : Wala
Approved Signatory
(/) Malee Butkruea
() Saithip Meangmai
() Warakorn Lemgagtrakul
Issue Date : 15 December 2021

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full, except with the prior written
Approval of the head of Corporate Services 3: Equipment Calibration and Testing Services





Cert.No.: 21CH1690

Page.: 2 of 2

Condition of this result of calibration

1. Reference Standard Instrument :-

| Instrument | Serial No. | ID No. | Certificate No. | Due date |
|----------------|------------|----------|-----------------|-------------|
| 1) Thermometer | 9549224 | 130RC003 | 211451 | 15 Apr 2022 |

This certification is traceable to the International System of Unit maintained at:-

- Traceable to National Institute of Metrology (Thailand), NIMT

2. Certified Reference Materials :-

- Conductivity calibration solution, CPA chem Ltd., The measurement results are traceable to SI through CPA chem Ltd., ANSI-ASQ National Accreditation Board, Accredited No. AR-1835
- Conductivity calibration solution, Thermo Scientific (traceable to NIST)

| Conductivity Solution | Manufacturer | Lot No. | Exp. date |
|-----------------------|-------------------|---------|--------------|
| *100 μ S/cm | Thermo Scientific | 101/04 | 12 Mar 2022 |
| 1.413 mS/cm | CPA Chem | 761021 | 02 Aug 2022 |
| 12.8806 mS/cm | CPA Chem | 754037 | 28 June 2022 |

- Control Conductivity calibration solution temperature by Water bath (25 ± 0.1) $^{\circ}$ C

3. This certificate is valid only to the item calibrated on date and place of calibration.

Calibration results

Function : Conductivity Measurement

(*) After Adjustment at 1.413, 12.8806 mS/cm

Conductivity Electrode Serial No.: 0720001N

| Standard Conductivity Solution | Before Adjustment UUC* Reading | After Adjustment UUC* Reading | Uncertainty of Measurement (\pm) | Coverage factor k |
|--------------------------------|--------------------------------|-------------------------------|--------------------------------------|-------------------|
| *100 μ S/cm | 95.42 μ S/cm | 99.93 μ S/cm | 5.1 μ S/cm | 2.00 |
| 1.413 mS/cm | 1.198 mS/cm | 1.412 mS/cm | 0.0092 mS/cm | 2.00 |
| 12.8806 mS/cm | 12.49 mS/cm | 12.87 mS/cm | 0.086 mS/cm | 2.00 |

Remark

- UUC* = Unit Under Calibration
- * : Not NSC - ONSC Accredited

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

-oOo-

Made

1086390



National Food Institute, Ministry of Industry, Thailand

Head Office: 36, Anurak Road, Bang-Mukdhan Subdistrict, Bang-Mukdhan District, Bangkok 10200, Thailand
Tel: +66 (0) 2462 8698 Fax: +66 (0) 2462 8698 Website: www.nfi.go.th Email: info@nfi.go.th



Calibration Certificate

Certificate No.: 2104065-002-01
Client name: SECOT CO., LTD.
Address: 239 Rimklongprapa Road,
Bangsue, Bangsue, Bangkok 10800

Page 1 of 3

Equipment: CHAMBER (Incubator)

Manufacturer: MEMMERT

Model: ICP 400

Serial No.: K406.0004

ID No.: N/A

Order No.: 2104065

Operation No.: 2104065-002

Date of Receipt: 2 August 2021

Date of Calibration: 2 August 2021

Calibrated by Mr.Worapob Sooktong
Scientist

Approved by (Mr.Pheraphat Tuanjit)
Manager, Division of Calibration Laboratory

Date of Issue: 3 August 2021

Responsible for the Technical Management Team

The uncertainties are for a confidence probability of approximately 95 %.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation scheme 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. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.

F-CS-009 Revision:00 Date: 14-12-61



National Food Institute, Ministry of Industry, Thailand

3008 Suk 26, Arun Amarin Road, Bang Yai Khan Subdistrict, Bang Thue District, Bangkok 10700 Thailand
Tel : +66 (0) 2422 8588 Fax : +66 (0) 2422 8589 Website : www.nfi.or.th E-mail : info@nfi.or.th



Calibration Report

Certificate No.: 2104065-002-01
Equipment: CHAMBER (Incubator)
Model: ICP 400 Serial No.: K406.0004
Resolution: 0.1 °C ID No.: N/A
Manufacturer: MEMMERT

Date of Calibration: 2 August 2021 Page 2 of 3

Location: Laboratory, SECOT CO., LTD.
Environment Condition: Ambient Temperature (32 ± 1) °C
Relative Humidity (60 ± 5) %
Line Voltage (229 ± 1) Volt

Condition of this results of Calibration:

- This instrument was calibrated by insert 9 standard thermometer into its chamber and calibration according to W-TE-014 Based on TLAS G-20-1/02-08 (E): Guidelines for Calibration and Checks of Temperature Controlled Enclosures.
 - The temperature scale used was based on ITS - 90.
 - All data show below were final values and the initial data may be obtained upon request.

2. Reference Standard Instrument :

| Instrument | Model | Serial No./ID No. | Certificate No. | Due Date | Through |
|---------------------------------|--------|-------------------------|-----------------|---------------|-------------------------|
| Digital Thermometer with sensor | 34972A | MY49016894 | TE 640400-01 | 24 April 2022 | NATIONAL FOOD INSTITUTE |
| | RTD | CH#201-209/ RTD#201-209 | | | |

- This certificate is traceable to International System of Units (SI Units).
- This certificate was certified only for the instrument we calibrated.
- This result of calibration was found accurate as shown on date and place of calibration only.
- Condition of Calibrated item : Good

UUC Description :

Time of Record 1 Hour 9 Minute At 20.0 °C

Fresh air Damper ☐ Open Position ☐
☒ Close
☐ Not Available

7. Result of Calibration : ☒ Without adjustment ☐ After adjustment



National Food Institute, Ministry of Industry, Thailand

3008 Suk 26, Arun Amarin Road, Bang Yai Khan Subdistrict, Bang Thue District, Bangkok 10700 Thailand
Tel : +66 (0) 2422 8588 Fax : +66 (0) 2422 8589 Website : www.nfi.or.th E-mail : info@nfi.or.th



Calibration Report

Certificate No.: 2104065-002-01
Equipment: CHAMBER (Incubator)
Model: ICP 400 Serial No.: K406.0004
Resolution: 0.1 °C ID No.: N/A
Manufacturer: MEMMERT

Date of Calibration: 2 August 2021 Page 3 of 3

Calibration point: 20.0 °C

Calibration result:

| Calibration Condition | Temperature (°C) | Relative Humidity (%) | Line Voltage (Volt) |
|-----------------------|------------------|-----------------------|---------------------|
| MIN | 30.9 | 55 | 228.8 |
| MAX | 31.9 | 65 | 230.1 |

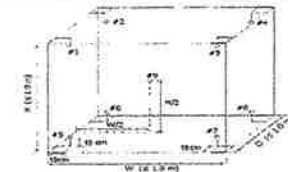


Table1 : Reporting of Temperature

| Calibration point (°C) | Measured Temperature (°C) @ Sensor No. (Sensor No.9 is REF) | | | | | | | | | Uncertainty ± (°C) |
|------------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|--------------------|
| | # 1 | # 2 | # 3 | # 4 | # 5 | # 6 | # 7 | # 8 | # 9 | |
| 20.0 | 19.99 | 20.07 | 20.13 | 20.03 | 20.05 | 19.98 | 20.00 | 20.06 | 20.02 | 0.27 |

Table 2 : Reporting of Characterization Result

| UUC* Setting (°C) | UUC* reading (°C) | | | Stability ± (°C) | Uniformity (°C) | Overall Variation (°C) |
|-------------------|-------------------|------|---------|------------------|-----------------|------------------------|
| | MIN | MAX | Average | | | |
| 20.0 | 20.0 | 20.0 | 20.0 | 0.062 | 0.12 | 0.27 |

Note The quoted uncertainty include " Stability " and " Loading effect (20% of Temp Uniformity) "

UUC* = Unit Under Calibration

Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.

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.

Overall Variation = The difference of the maximum and minimum measured temperatures throughout observation time.

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

----- End -----

Calibration Report

| | | | |
|-------------------------|-----------------------|-------------|-----------|
| Certificate No.: | 2104065-003-01 | | |
| Equipment: | Water Bath | | |
| | Model: WB 29 | Serial No.: | 1698.0051 |
| | Resolution: 0.1 °C | ID No.: | N/A |
| | Manufacturer: MEMMERT | | |

Page 2 of 3

| | |
|-------------------------------|-----------------------------------|
| Location: | Laboratory, SECOT CO., LTD. |
| Environment Condition: | Ambient Temperature (34 ± 1) °C |
| | Relative Humidity (59 ± 4) % |
| | Line Voltage (230 ± 1) Volt |

1. This instrument was calibrated by insert 5 standard thermometer into its liquid bath and calibration according to W-TE-011 based on ASTM E715-80 (Reapproved 2006): Standard Specification for Gravity-Convection and Forced-Circulation Water Baths.

- The temperature scale used is ITS - 90.
- All data show below were final values and the initial data may be obtained upon request.

| Instrument | Model | Serial No./ID No. | Certificate No. | Due Date | Through |
|------------------------------------|--------|--------------------------|-----------------|---------------|-------------------------------|
| Digital Thermometer with sensor | 34972A | MY49016894 | TE 640400-01 | 24 April 2022 | NATIONAL FOOD INSTITUTE |
| | RTD | RTD#301-305 / CH#301-305 | | | |

3. This certificate is traceable to International System of Units (SI Units).
4. This certificate was certified only for the instrument we calibrated.
5. This result of calibration was found accurate as shown on date and place of calibration only.
6. Condition of Calibrated item : Good

UUC Description:

Time of Record 1 Hour 9 Minute At 95.0 °C

| | | |
|----------------------------|---|--------------------|
| 7. Result of Calibration : | X | Without adjustment |
| | | After adjustment |

Calibrated by Mr.Worapob Sooktong
Scientist

Approved by 
(Mr.Pheraphat Tuanjit)
Manager, Division of Calibration Laboratory

Date of Issue: 3 August 2021
Responsible for the Technical Management Team

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 Accreditation System of Thailand 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. This certificate may not be reproduced other than in full except with the prior written approval of the National Food Institute.



National Food Institute, Ministry of Industry, Thailand



Calibration Report

Certificate No.: 2104065-003-01
Equipment: Water Bath
 Model: WB 29 Serial No.: 1698.0051
 Resolution: 0.1 °C ID No.: N/A
 Manufacturer: MEMMERT
Date of Calibration: 2 August 2021

Page 3 of 3

Calibration point: 95.0 °C

Calibration result:

| Calibration Condition | Temperature (°C) | Relative Humidity (%) | Line Voltage (Volt) |
|-----------------------|------------------|-----------------------|---------------------|
| Min | 32.6 | 55 | 229.0 |
| Max | 35.5 | 62 | 230.0 |



Sensor Installation Location

Table1 : Reporting of Temperature

| Calibration Point (°C) | Measured Temperature (°C) @ Sensor No. (Sensor No.5 is REF) | | | | | Uncertainty ± (°C) |
|------------------------|---|-------|-------|-------|-------|--------------------|
| | # 1 | # 2 | # 3 | # 4 | # 5 | |
| 95.0 | 94.97 | 94.92 | 95.06 | 94.96 | 95.02 | 0.38 |

Table 2 : Reporting of Characterization Result

| UUC* Setting (°C) | UUC* reading (°C) | | | Stability ± (°C) | Uniformity (°C) | Overall Variation (°C) |
|-------------------|-------------------|------|---------|------------------|-----------------|------------------------|
| | MIN | MAX | Average | | | |
| 95.0 | 94.9 | 95.2 | 95.0 | 0.25 | 0.38 | 0.54 |

Note The quoted uncertainty include " Stability " and " Loading effect (20% of Temp Uniformity)"

UUC* = Unit Under Calibration

Stability = One-half of the greatest maximum difference of measured temperatures at any one sensors, for at least half an hour after reaching steady state.

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.

Overall Variation = The difference of the maximum and minimum measured temperatures throughout observation time.

The report uncertainty of measurement was based on standard uncertainty multiplied by coverage factor $k=2$, providing a level of confidence of approximately 95 %.

----- End -----

Sheet No. : NC-74-2022-019



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Feb 18, 22

SOUND LEVEL CALIBRATOR

| Brand | Model | Serial No. | Calibrated (dB) | Frequency (Hz) | | |
|-------|-------|------------|-----------------|-----------------------|------------------|-----------|
| RION | NC-74 | 34283648 | 94.00 | 1000 | | |
| No. | Brand | Model | Serial No. | Microphone Serial No. | SLM Reading (dB) | dB Adjust |
| 60 | RION | NL-21 | 00187515 | 117820 | 93.9 | 0.1 |
| 62 | RION | NL-21 | 00487719 | 118988 | 94.0 | 0.0 |
| 66 | RION | NL-21 | 00487723 | 118993 | 94.0 | 0.0 |

Calibrated by :

[Signature]

Approved by :

[Signature]

NC-74-2022-019/Cal/11/3/2022



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

975 Moo 4, Bangpoo Industrial Estate, Soi 8, Sukhumvit Road km 37,

Phraek Sa, Mueang Samut Prakan, Samut Prakan 10280

Tel: +66 2709 4860-8 Fax: +66 2324 0917-8



Certificate No.: CP20210095EA
Operation No.: CP2021120016

Certificate of Calibration

Equipment: Sound Calibrator
Manufacturer: RION
Model/Type: NC-74
Serial No.: 34283648
ID No.:
Customer: SECOT Co.,Ltd.
Address: 239 Rimklongprapa Rd., Bangsue,
Bangkok 10800 Thailand
Received Date: 21 December 2021
Calibrated Date: 24 December 2021
Issued Date: 28 December 2021
Calibrated by: Ms. Juntaporn Kunhakom

Approved by:

(Mr. Sittichai Swaksuriyawong)
Group Manager

This report was prepared electronically using applicable electronic signature. Printing or copy of file are considered as a copy of the document.

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor $k = 2.00$, providing a level of confidence of approximately 95%. This certificate may not be reproduced other than in full except with the prior written approval of the Electrical and Electronics Institute, Foundation for Industrial Development.



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

Certificate No.: CP20210095EA

Calibration Report

Equipment: Sound Calibrator
Manufacturer: RION
Model/Type: NC-74
Serial No.: 34283648
ID No.:
Ambient Temperature: $(23 \pm 2) ^\circ\text{C}$
Relative Humidity: $(50 \pm 15) \%$
Pressure: $(101.3 \pm 1.5) \text{ kPa}$

Method of Calibration :-

IEC 60942:2017

Condition of this result of calibration

1. Reference standards instrument :-

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|--------|------------|-------------------------|-----------------------------|
| 1) Standard microphone | 4180 | 2661000 | AA-1010-21 | 13 June 2022 |
| 2) Waveform Generator | 33511B | MY52302264 | 0144RF21 | 17 June 2022 |
| 3) Audio Analyzing DMM | 2015-P | 4079104 | E1U210398 | 2 February 2022 |
| 4) Pressure humidity and Temperature Transmitter | PTU301 | F0640002 | CL1-P210047 0255TE21 | 16 June 2022 7 July 2022 |

2. This result of calibration was found accurate as shown on data and place of calibration only.

3. This certification is traceable to the international system of unit maintained at :-

Reference standards instrument for Acoustic function

- National Institute of Metrology (Thailand)

Reference standards instrument for Electrical function

- Electrical and Electronics Institute: ONSC Accredited Calibration No.0119

Result of Calibration:-

1. Function : Sound pressure level

| Nominal Frequency (Hz) | Specified Sound Pressure level (dB) | Measured value (dB) | Deviated value ⁽¹⁾ (dB) | Acceptance limit ⁽³⁾ (dB) |
|---------------------------|--|------------------------|---------------------------------------|---|
| 1000 | 94 | 94.22 | 0.22 | ± 0.25 |

2. Function : Frequency

| Nominal Sound Pressure level (dB) | Specified Frequency (Hz) | Measured value (Hz) | Deviated value ⁽²⁾ (%) | Acceptance limit ⁽³⁾ (%) |
|--------------------------------------|-----------------------------|------------------------|--------------------------------------|--|
| 94 | 1000 | 1003.0 | 0.3 | ± 0.7 |



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

Certificate No.: CP20210095EA

Calibration Report

3. Function : Total distortion + noise

| Nominal Sound Pressure level (dB) | Nominal Frequency (Hz) | Measured value ^[4] (%) | Acceptance limit ^[5] (%) |
|--------------------------------------|---------------------------|--------------------------------------|--|
| 94 | 1000 | 1.3 | 2.5 |

Uncertainty of measurement

| Function | Uncertainty | Maximum-permitted uncertainty of measurement |
|--------------------------|-------------|---|
| Sound pressure level | 0.10 dB | 0.15 dB |
| Frequency | 0.10 % | 0.20 % |
| Total distortion + noise | 0.40 % | 0.50 % |

Note: [1] The deviated value is the absolute value of the difference between the measured value and the corresponding specified sound pressure level.
[2] The deviated value is the absolute value of the difference in percent between the measured value and the corresponding specified frequency.
[3] The acceptance limit is for the deviated value.
[4] The measured value is the total distortion + noise, measured over the frequency range from 20 Hz to 20 kHz.
[5] The acceptance limit is for the Measured value.

Remarks: 1. Using the 1/2-inch microphone adaptor NC-74-002.
2. Acceptance limit was IEC 60942:2017 Class 1.

-- End of Report --

Sheet No. : CEL120/2-2022-025



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: Mar 21, 22

SOUND LEVEL CALIBRATOR

| Brand | Model | Serial No. | Calibrated (dB) | Frequency (Hz) |
|---------|----------|------------|--------------------|----------------|
| CASELLA | CEL120/2 | 2839225 | 114.0 | 1000 |

| No. | Brand | Model | Serial No. | Microphone Serial No. | SLM Reading (dB) | dB Adjust |
|-----|---------|---------|------------|--------------------------|------------------------|-----------|
| 9 | CASELLA | CEL-246 | 3173156 | 3173156 | 114.1 | -0.1 |

Calibrated by :

Approved by :



SOUND LEVEL METER CALIBRATION

Calibration Location: SECOT

Calibration Date: May 30, 22

SOUND LEVEL CALIBRATOR

| Brand | Model | Serial No. | Calibrated (dB) | Frequency (Hz) |
|---------|----------|------------|-----------------|----------------|
| CASELLA | CEL120/2 | 2839225 | 114.0 | 1000 |

| No. | Brand | Model | Serial No. | Microphone Serial No. | SLM Reading (dB) | dB Adjust |
|-----|---------|---------|------------|-----------------------|------------------|-----------|
| 4 | CASELLA | CEL-246 | 1443817 | 1443817 | 113.8 | 0.2 |

Calibrated by :

Approved by :



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

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Phraek Sa, Mueang Samut Prakan, Samut Prakan 10280

Tel: +66 2709 4860-8 Fax: +66 2324 0917-8

NAC-MRA
CALIBRATION 0119

Certificate No.: CP20210096EA

Operation No.: CP2021120017

Certificate of Calibration

Equipment: Sound Calibrator

Manufacturer: CASELLA

Model/Type: CEL-120/2

Serial No.: 2839225

ID No.: -

Customer: SECOT Co.,Ltd.

Address: 239 Rimklongprapa Rd., Bangsue,
Bangkok 10800 Thailand

Received Date: 21 December 2021

Calibrated Date: 24 December 2021

Issued Date: 28 December 2021

Calibrated by: Ms. Juntaporn Kunhakorn

Approved by:

(Mr. Sittichai Swaksuriyawong)
Group Manager

This report was prepared electronically using applicable electronic signature. Printing or copy of file are considered as a copy of the document.

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor $k = 2.00$, providing a level of confidence of approximately 95%. This certificate may not be reproduced other than in full except with the prior written approval of the Electrical and Electronics Institute, Foundation for Industrial Development.



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

Certificate No.: CP20210096EA

Calibration Report

Equipment: Sound Calibrator
Manufacturer: CASELLA
Model/Type: CEL-120/2
Serial No.: 2839225
ID No.: *
Ambient Temperature: $(23 \pm 2) ^\circ\text{C}$
Relative Humidity: $(50 \pm 15) \%$
Pressure: $(101.3 \pm 1.5) \text{ kPa}$

Method of Calibration :-

IEC 60942:2017

Condition of this result of calibration

1. Reference standards instrument :-

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|--|--------|------------|-------------------------|-----------------------------|
| 1) Standard microphone | 4180 | 2661000 | AA-1010-21 | 13 June 2022 |
| 2) Waveform Generator | 33511B | MY52302264 | 0144RF21 | 17 June 2022 |
| 3) Audio Analyzing DMM | 2015-P | 4079144 | E1U210398 | 2 February 2022 |
| 4) Pressure humidity and Temperature Transmitter | PTU301 | F0640002 | CL1-F210047 02551E21 | 16 June 2022 7 July 2022 |

2. This result of calibration was found accurate as shown on date and place of calibration only.

3. This certification is traceable to the international system of unit maintained at :-

Reference standards instrument for Acoustic function

- National Institute of Metrology (Thailand)

Reference standards instrument for Electrical function

- Electrical and Electronics Institute; ONSC Accredited Calibration No.0119

Result of Calibration:-

1. Function : Sound pressure level

| Normal Frequency (Hz) | Specified Sound Pressure level (dB) | Measured value (dB) | Deviated value ^[1] (dB) | Acceptance limit ^[5] (dB) |
|--------------------------|--|------------------------|---------------------------------------|---|
| 1000 | 114 | 114.20 | 0.20 | ± 0.40 |

2. Function : Frequency

| Normal Sound Pressure level (dB) | Specified Frequency (Hz) | Measured value (Hz) | Deviated value ^[2] (%) | Acceptance limit ^[5] (%) |
|-------------------------------------|-----------------------------|------------------------|--------------------------------------|--|
| 114 | 1000 | 1000.0 | 0.0 | ± 1.7 |



ELECTRICAL AND ELECTRONICS INSTITUTE
FOUNDATION FOR INDUSTRIAL DEVELOPMENT

Certificate No.: CP20210096EA

Calibration Report

3. Function : Total distortion + noise

| Normal Sound Pressure level (dB) | Normal Frequency (Hz) | Measured value ^[4] (%) | Acceptance limit ^[5] (%) |
|-------------------------------------|--------------------------|--------------------------------------|--|
| 114 | 1000 | 0.4 | 3.0 |

Uncertainty of measurement

| Function | Uncertainty | Maximum-permitted uncertainty of measurement |
|--------------------------|-------------|---|
| Sound pressure level | 0.10 dB | 0.35 dB |
| Frequency | 0.10 % | 0.20 % |
| Total distortion + noise | 0.40 % | 1.00 % |

Note: [1] The deviated value is the absolute value of the difference between the measured value and the corresponding specified sound pressure level.

[2] The deviated value is the absolute value of the difference in percent between the measured value and the corresponding specified frequency.

[3] The acceptance limit is for the deviated value.

[4] The measured value is the total distortion + noise, measured over the frequency range from 20 Hz to 20 kHz.

[5] The acceptance limit is for the Measured value.

Remarks: 1. Acceptance limit was IEC 60942:2017 Class 2.

-- End of Report --



Heat Stress Meter Calibration

Date: Mar 30, 21

Temperature (°C) 20

Barometric Pressure: Pb (mmHg) 760

REFERENCE STANDARD INSTRUMENT

UNIT UNDER TEST

Equipment : Dry Well

Equipment : Heat Stress Meter

Model No. 9140 HDRC

Model No. QUESTEMP °34

Serial No. AOA890

Serial No. TEL070017

Manufacturer HART SCIENTIFIC

Manufacturer QUEST

Calibration Date 25 May 2020

Temperature Reading

| Reference Setting (°C) | T _g (°C) | T (°C) | T _n (°C) |
|------------------------|---------------------|--------|---------------------|
| 20.0 | 20.1 | 20.1 | 20.1 |
| 25.0 | 25.1 | 25.1 | 25.2 |
| 30.0 | 30.0 | 30.2 | 30.1 |
| 35.0 | 35.0 | 35.2 | 35.2 |
| 40.0 | 40.1 | 40.1 | 40.2 |
| 45.0 | 45.2 | 45.2 | 45.0 |
| 50.0 | 50.2 | 50.2 | 49.9 |

- Note : 1) T_g = Globe thermometer temperature
 2) T_n = Wet bulb with natural ventilation temperature
 3) T = Ambient temperature

Calibrated by : Suphany P.Approved by : Wittaya Co.

INTERNATIONAL TESTING SERVICE CO., LTD

1213/388 Ladprao 94 Ladprao Rd., Wangtonglang Bangkok 10310
 Tel 0-2559-2095 Fax 0-2559-2096

E-mail : sale@itest-lab.com web site : www.itest-lab.com

CALIBRATION CERTIFICATE

Order No. : O-2202-011

Customer : SECOT CO., LTD (HEAD OFFICE)
 Address : 239 rimklongprapa Rd., Bangsue, Bangkok 10800

Description of Equipment : Thermal Environment Monitor
 Manufacturer : 3M
 Model Number : QUESTemp° 46
 Serial Number : TSN080002
 ID./Control No. : N/A
 Made In : USA
 Location : In House
 Environment Conditions : Temperature (23+/-3) °C
 Humidity (50+/-20) %RH
 Cal Date : FEB 18, 2022
 Issue Date : FEB 18, 2022

Uncertainty of Measurement

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor of k=2. It has been evaluated according to the "Expression of the Uncertainty of measurement in Calibration (EA-4/02)" which provides a level of confidence approximately 95%.

Calibration result approved by

Approved on behalf of
International Testing Service Co., Ltd

T. Jirawat
 (Mr. Vittana Tholueng)

Technical laboratory



Mr. Pichit Vivat-Anant
 (Mr. Pichit Vivat-Anant)

Managing Director

**INTERNATIONAL TESTING SERVICE CO., LTD**1213/388 Ladprao 94 Ladprao Rd. Wangtonglang Bangkok 10310
Tel 0-2559-2095 Fax 0-2559-2096

E-mail : sale@itest-lab.com web site : www.itest-lab.com

Certificate of Calibration :

Description : Thermal Environment Monitor Serial No. : TSN080002 Order No. : O-2202-011
 Manufacturer : 3M ID/control No. : N/A Received Date : FEB 15, 2022
 Model : QUESTemp° 46 Made In : USA Calibration Date: FEB 18, 2022

Calibration method :

- This instrument was calibrated by comparison with standard chilled mirror hygrometer follow to in house calibration method
- Into humidity and temperature chamber the temperature scale used was based on ITS-90
- This result was found accurate as shown on date and place of calibration only.

Reference Standard :

| Description | Model | Serial No. | Certificate No. | Due Date |
|-------------------------------------|---------------|------------|-----------------|--------------|
| Chilled Mirror Hygrometer, Edgetech | Dew Master | 52542 | TH-0123-21 | NOV 26, 2022 |
| Temperature & Humidity Chamber | PGC 7041-5110 | 1708182 | - | - |

Traceability :

This Certification is traceable to the international system of unit maintained at:-
 - NIMT, National Institute of Metrology (Thailand).

Result of Calibration : Without adjustment**Calibration Range :** 20 to 50 °C **Resolution:** 0.1 °C**Function :** Temperature Accuracy Test (DRY)

| Test point (°C) | Standard Reading (°C) | UUC* Reading (°C) | Correction (°C) | Uncertainty of Measurement (+/- °C) |
|----------------------|-------------------------------|---------------------------|----------------------|---|
| 20 | 20.02 | 20.2 | -0.18 | 0.32 |
| 30 | 30.03 | 30.2 | -0.17 | 0.32 |
| 40 | 40.04 | 40.3 | -0.26 | 0.32 |
| 50 | 49.97 | 50.3 | -0.33 | 0.32 |

Result of Calibration : Without adjustment**Calibration Range :** 20 to 50 °C **Resolution:** 0.1 °C**Function :** Temperature Accuracy Test (WET)

| Test point (°C) | Standard Reading (°C) | UUC* Reading (°C) | Correction (°C) | Uncertainty of Measurement (+/- °C) |
|----------------------|-------------------------------|---------------------------|----------------------|---|
| 20 | 20.02 | 20.3 | -0.28 | 0.32 |
| 30 | 30.03 | 30.2 | -0.17 | 0.32 |
| 40 | 40.04 | 40.2 | -0.16 | 0.32 |
| 50 | 49.97 | 50.2 | -0.23 | 0.32 |



The Results shown in this certification report refer only to the equipment(s) calibrated unless otherwise stated
 This Calibration Certificate cannot be reproduced, except in full, without permission of company.

**INTERNATIONAL TESTING SERVICE CO., LTD**1213/388 Ladprao 94 Ladprao Rd. Wangtonglang Bangkok 10310
Tel 0-2559-2095 Fax 0-2559-2096

E-mail : sale@itest-lab.com web site : www.itest-lab.com

Certificate of Calibration :

Description : Thermal Environment Monitor Serial No. : TSN080002 Order No. : O-2202-011
 Manufacturer : 3M ID/control No. : N/A Received Date : FEB 15, 2022
 Model : QUESTemp° 46 Made In : USA Calibration Date: FEB 18, 2022

Result of Calibration : Without adjustment**Calibration Range :** 20 to 50 °C **Resolution:** 0.1 °C**Function :** Temperature Accuracy Test (GLOBE)

| Test point (°C) | Standard Reading (°C) | UUC* Reading (°C) | Correction (°C) | Uncertainty of Measurement (+/- °C) |
|----------------------|-------------------------------|---------------------------|----------------------|---|
| 20 | 20.02 | 20.3 | -0.28 | 0.32 |
| 30 | 30.03 | 30.3 | -0.27 | 0.32 |
| 40 | 40.04 | 40.3 | -0.26 | 0.32 |
| 50 | 49.97 | 50.4 | -0.43 | 0.32 |

Result of Calibration : Without adjustment**Calibration Range :** 30 to 70 % RH **Resolution:** 0.1 % RH**Function :** Humidity Accuracy Test

| Reference Temperature °C | Test point %RH | Standard Value %RH | UUC* Reading %RH | Correction %RH | Uncertainty of Measurement (+/- %RH) |
|--------------------------------|-------------------|--------------------------|------------------------|-------------------|--|
| 25.01 | 30 | 30.01 | 30.3 | -0.29 | 1.2 |
| 24.98 | 50 | 49.93 | 50.8 | -0.87 | 1.4 |
| 25.03 | 70 | 69.94 | 69.6 | 0.34 | 1.4 |

UUC* = Unit Under Calibration

*****End Certificate of Calibration*****



The Results shown in this certification report refer only to the equipment(s) calibrated unless otherwise stated
 This Calibration Certificate cannot be reproduced, except in full, without permission of company.

ภาคผนวก จ

หนังสืออนุญาตขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
จากกรมโรงงานอุตสาหกรรม



ที่ อก ๐๓๑๐(๑)/ ๑๗๔ ๕

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ แขวงทุ่งพญาไท
เขตราชเทวี กรุงเทพฯ ๑๐๔๐๐

๐๕ กุมภาพันธ์ ๒๕๖๕

เรื่อง เปลี่ยนแปลงบุคลากรของห้องปฏิบัติการวิเคราะห์

เรียน กรรมการผู้จัดการ บริษัท ซีคอฟ จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๒๘ มกราคม ๒๕๖๕

ตามหนังสือที่อ้างถึง บริษัท ซีคอฟ จำกัด ห้องปฏิบัติการวิเคราะห์เอกชน เลขทะเบียน ๖-๒๓๙
สถานที่ตั้งเลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร ขอเปลี่ยนแปลง
บุคลากรของห้องปฏิบัติการวิเคราะห์ ความละเอียดแจ้งแล้ว นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว มีความเห็นดังนี้

๑. ให้ยกเลิกเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๔ ราย

- | | |
|--------------------------------------|----------------------------|
| ๑) นางสาวโชติมาส ไทยเจริญ | ทะเบียนเลขที่ ๖-๒๓๙-จ-๖๐๐๖ |
| ๒) นางสาวณัฐศิริ เลิศธีรพัฒน์ | ทะเบียนเลขที่ ๖-๒๓๙-จ-๖๔๒๓ |
| ๓) นางสาวเกษวิมล คิลศึก | ทะเบียนเลขที่ ๖-๒๓๙-จ-๖๔๒๔ |
| ๔) นางสาวจิรนนท์ จิตุฑะศรี ปิยะธนากร | ทะเบียนเลขที่ ๖-๒๓๙-จ-๗๒๒๒ |

๒. ให้เพิ่มผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ ราย

- | | |
|----------------------------|----------------------------|
| นางสาวณัฐศิริ เลิศธีรพัฒน์ | ทะเบียนเลขที่ ๖-๒๓๙-จ-๐๐๐๑ |
|----------------------------|----------------------------|


๓. ให้เพิ่มเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๒ ราย

- | | |
|---------------------------------|----------------------------|
| ๑) นางสาวสุดาพร สุนทร | ทะเบียนเลขที่ ๖-๒๓๙-จ-๐๐๐๑ |
| ๒) นางสาวณัฐณิชา อินทรประสิทธิ์ | ทะเบียนเลขที่ ๖-๒๓๙-จ-๐๐๐๒ |

อนึ่ง หนังสือฉบับนี้จะหมดอายุพร้อมหนังสือต่ออายุรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
ที่ อก ๐๓๑๐(๑)/๑๗๔๐๕ ลงวันที่ ๒๑ ตุลาคม ๒๕๖๓ คือในวันที่ ๒ พฤษภาคม ๒๕๖๖ ทั้งนี้ สามารถยื่นคำ
ขอผ่านระบบอิเล็กทรอนิกส์ได้ที่หน้าเว็บไซต์กรมโรงงานอุตสาหกรรม ตาม QR Code ท้ายหนังสือฉบับนี้

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ


(นางจินดา เชนะศรีนทร์)

ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม



ยื่นคำขอผ่านระบบอิเล็กทรอนิกส์

กองวิจัยและเตือนภัยมลพิษโรงงาน
กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ
โทร. ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๐๓-๕
โทรสาร ๐ ๒๔๓๐ ๖๓๑๒ ต่อ ๒๑๙๙
ไปรษณีย์อิเล็กทรอนิกส์ saraban@diw.mail.go.th



ที่ อก ๐๓๑๐(๑)/ ๑๑๘ ๐๕

กรมโรงงานอุตสาหกรรม
ถนนพระรามที่ ๖ เขตราชเทวี
กรุงเทพมหานคร ๑๐๔๐๐

๒๑ ตุลาคม ๒๕๖๓

เรื่อง ต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

เรียน กรรมการผู้จัดการ บริษัท ซีคอฟ จำกัด

อ้างถึง คำขอขึ้นทะเบียน/ต่ออายุ/เปลี่ยนแปลงบุคลากร และชนิดสารมลพิษของห้องปฏิบัติการวิเคราะห์เอกชน
ลงวันที่ ๒๔ มีนาคม ๒๕๖๓

สิ่งที่ส่งมาด้วย ๑. รายชื่อผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น

๒. รายชื่อเจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๑ แผ่น

๓. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๒ แผ่น

ตามหนังสือที่อ้างถึง บริษัท ซีคอฟ จำกัด ขอต่ออายุหนังสือรับขึ้นทะเบียนห้องปฏิบัติการ
วิเคราะห์เอกชน เลขทะเบียน ๖-๒๓๙ สถานที่ตั้งเลขที่ ๒๓๙ ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ
กรุงเทพมหานคร ต่อกรมโรงงานอุตสาหกรรม นั้น

กรมโรงงานอุตสาหกรรมพิจารณาแล้ว ให้บริษัท ซีคอฟ จำกัด ต่ออายุหนังสือรับขึ้นทะเบียน
ห้องปฏิบัติการวิเคราะห์เอกชน โดยมีองค์ประกอบดังนี้

ก. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย ตามสิ่งที่ส่งมาด้วย ๑

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓๑ ราย ตามสิ่งที่ส่งมาด้วย ๒

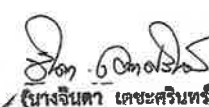
ค. ขอบข่ายสารมลพิษที่ได้รับขึ้นทะเบียนไว้วิเคราะห์ในน้ำเสีย จำนวน ๔๖ รายการ น้ำได้ดิน

จำนวน ๑๒๓ รายการ อากาศเสีย จำนวน ๒๗ รายการ สิ่งปฏิกูลหรือวัสดุที่ไม่ใช้แล้ว จำนวน ๓๔ รายการ
และดิน จำนวน ๑๒๒ รายการ รวมทั้งสิ้นจำนวน ๓๕๒ รายการ ตามสิ่งที่ส่งมาด้วย ๓

หนังสือฉบับนี้จะหมดอายุในวันที่ ๒ พฤษภาคม ๒๕๖๖ หากประสงค์จะต่ออายุหนังสือ
รับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน ให้ยื่นคำขอต่ออายุพร้อมเอกสารประกอบคำขอต่อ
กรมโรงงานอุตสาหกรรมภายใน ๓๐ วัน ก่อนวันสิ้นอายุของหนังสือรับขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน
ซึ่งคำขอต่ออายุดังกล่าวขอรับได้ที่กรมโรงงานอุตสาหกรรม

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ


(นางจินดา เชนะศรีนทร์)

ผู้อำนวยการกองวิจัยและเตือนภัยมลพิษโรงงาน
ปฏิบัติราชการแทนอธิบดีกรมโรงงานอุตสาหกรรม

กองวิจัยและเตือนภัยมลพิษโรงงาน
กลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษและทะเบียนห้องปฏิบัติการ
โทร. ๐ ๒๒๐๒ ๔๐๐๒ ๐ ๒๒๐๒ ๔๑๔๖
โทรสาร ๐ ๒๒๕๔ ๓๒๐๘ ๐ ๒๒๕๔ ๓๔๑๕
โทรสาร ๐ ๒๒๕๔ ๓๒๐๘ ๐ ๒๒๕๔ ๓๔๑๕

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ชีคอฟ จำกัด

เลขทะเบียน ว-๒๓๙

ที่ ออก ๐๓๑๐(๑)/ ๑ ๑ ๘ ๐ ๕

ลงวันที่ ๒๑ ตุลาคม ๒๕๖๓

จ. ผู้ควบคุมดูแลห้องปฏิบัติการวิเคราะห์ จำนวน ๑๐ ราย

| | |
|------------------------------|----------------------------|
| ๑) นางสาวฤดี เกรียงไกรอุดม | ทะเบียนเลขที่ ว-๒๓๙-ค-๕๕๒๐ |
| ๒) นางสาวอารยา ทิพักษ์ | ทะเบียนเลขที่ ว-๒๓๙-ค-๕๕๖๓ |
| ๓) นายขรรชัย เกรียงไกรอุดม | ทะเบียนเลขที่ ว-๒๓๙-ค-๕๕๗๕ |
| ๔) นางสาวชมพุดา อินทร์ศรี | ทะเบียนเลขที่ ว-๒๓๙-ค-๕๕๗๖ |
| ๕) นางสาวปรีดา สมใจ | ทะเบียนเลขที่ ว-๒๓๙-ค-๕๕๗๘ |
| ๖) นางสาวอริญญา มาตา | ทะเบียนเลขที่ ว-๒๓๙-ค-๕๕๗๙ |
| ๗) นางสาวลดาวัลย์ วงศ์เจริญ | ทะเบียนเลขที่ ว-๒๓๙-ค-๕๕๘๐ |
| ๘) นางสาวมณีนววรรณ เกตะวันดี | ทะเบียนเลขที่ ว-๒๓๙-ค-๕๕๘๒ |
| ๙) นางสาวนริสา ภูวสรเพ็ชร์ | ทะเบียนเลขที่ ว-๒๓๙-ค-๖๔๑๙ |
| ๑๐) นางสาวศิริวรรณ นิยมสง่า | ทะเบียนเลขที่ ว-๒๓๙-ค-๖๔๒๐ |

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ชีคอฟ จำกัด

เลขทะเบียน ว-๒๓๙

ที่ ออก ๐๓๑๐(๑)/ ๑ ๑ ๘ ๐ ๕

ลงวันที่ ๒๑ ตุลาคม ๒๕๖๓

ข. เจ้าหน้าที่ประจำห้องปฏิบัติการวิเคราะห์ จำนวน ๓๑ ราย

| | |
|--------------------------------------|----------------------------|
| ๑) นางสาวสุรชาติ ชัยธรรม | ทะเบียนเลขที่ ว-๒๓๙-จ-๕๕๒๕ |
| ๒) นางสาวสุธาทิพย์ เทียนเตี้ย | ทะเบียนเลขที่ ว-๒๓๙-จ-๕๕๒๙ |
| ๓) นางสาวสุนันทา ศิริวัฒนานนท์ | ทะเบียนเลขที่ ว-๒๓๙-จ-๕๕๘๓ |
| ๔) นายบวร ดิษฐ์ยะ | ทะเบียนเลขที่ ว-๒๓๙-จ-๕๕๘๖ |
| ๕) นางสาวเกศรินทร์ วรเดชาวิทยา | ทะเบียนเลขที่ ว-๒๓๙-จ-๕๕๙๑ |
| ๖) นายอนิวัฒน์ พิมวันนา | ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๑ |
| ๗) นายชิตพล สมประสงค์ | ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๒ |
| ๘) นางสาวศศิธร พรหมประเสริฐ | ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๓ |
| ๙) นายศิวนนท์ กุลวงษ์ | ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๕ |
| ๑๐) นางสาวโชติมาส ไทยเจริญ | ทะเบียนเลขที่ ว-๒๓๙-จ-๖๐๐๖ |
| ๑๑) นางสาวปิยขวัญ สุระโคตร | ทะเบียนเลขที่ ว-๒๓๙-จ-๖๔๒๑ |
| ๑๒) นางสาวณัฐศิริ เลิศธีรพิพัฒน์ | ทะเบียนเลขที่ ว-๒๓๙-จ-๖๔๒๓ |
| ๑๓) นางสาวเกษวรินทร์ ศิลศึก | ทะเบียนเลขที่ ว-๒๓๙-จ-๖๔๒๔ |
| ๑๔) นางสาวอลิษา คณิรานนท์ | ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๑ |
| ๑๕) นางสาวจิรนนท์ จิตตะศรี ปิยะธนากร | ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๒ |
| ๑๖) นางสาวสิริวรรณ แก้วชิงดวง | ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๓ |
| ๑๗) นางสาวปัทมวรรณ สุวรรณวิโรจน์ | ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๔ |
| ๑๘) นางสาวกนิษฐา เจริญเชื้อ | ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๖ |
| ๑๙) นายจิรากร ลิมศิลา | ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๗ |
| ๒๐) นายชนาธิป สิงห์เกษมศักดิ์ | ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๓๘ |
| ๒๑) นายวัชรกานต์ ประมาคะเต | ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๔๐ |
| ๒๒) นายซอง เสงฆ์วัลกุล | ทะเบียนเลขที่ ว-๒๓๙-จ-๗๒๔๒ |
| ๒๓) นางสาวกฤษณา จันทุม | ทะเบียนเลขที่ ว-๒๓๙-จ-๗๘๐๒ |
| ๒๔) นางสาวพรนภา บุตรธรรม | ทะเบียนเลขที่ ว-๒๓๙-จ-๗๘๐๓ |
| ๒๕) นางสาวธาริณี อาจปลิว | ทะเบียนเลขที่ ว-๒๓๙-จ-๗๘๐๔ |
| ๒๖) นายธนโชติ ช่างล้อ | ทะเบียนเลขที่ ว-๒๓๙-จ-๗๘๐๖ |
| ๒๗) นางสาวพัชรา สมานฉันท | ทะเบียนเลขที่ ว-๒๓๙-จ-๘๑๘๓ |
| ๒๘) นางสาวจุฑารัตน์ แจ่มเรือน | ทะเบียนเลขที่ ว-๒๓๙-จ-๘๔๔๓ |
| ๒๙) นางสาวจณิสตา กุ้ยอ่อน | ทะเบียนเลขที่ ว-๒๓๙-จ-๘๕๓๗ |
| ๓๐) นางสาววรัญญา เขียนม้น | ทะเบียนเลขที่ ว-๒๓๙-จ-๘๕๓๘ |
| ๓๑) นางสาวจิรารัตน์ นฤตมนต์ | ทะเบียนเลขที่ ว-๒๓๙-จ-๘๕๓๙ |

เอกสารแนบท้ายหนังสือรับต่ออายุขึ้นทะเบียนห้องปฏิบัติการวิเคราะห์เอกชน

บริษัท ซีคอฟ จำกัด

เลขทะเบียน ว-๒๓๙

ที่ ออก ๐๓๑๐(๑)/ ๓๑ ๘ ๐๔

ลงวันที่ ๒๑ ตุลาคม ๒๕๖๓

ขอขยายสารมลพิษที่ได้รับขึ้นทะเบียนจากกรมโรงงานอุตสาหกรรม จำนวน ๓๕๒ รายการ

น้ำเสีย จำนวน 46 รายการ

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|---------------------------|--|
| 1 | Aldrin | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] |
| 2 | Arsenic | 1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[4] 2) Digestion, Inductively Coupled Plasma Method ^[4] |
| 3 | Barium | 1) Digestion, Direct Nitrous Oxide-Acetylene Flame Method ^[4] 2) Digestion, Inductively Coupled Plasma Method ^[4] |
| 4 | α-BHC | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] |
| 5 | β-BHC | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] |
| 6 | γ-BHC | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] |
| 7 | δ-BHC | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] |
| 8 | Biochemical Oxygen Demand | 1) 5-Day BOD Test, Azide Modification Method ^[4] 2) 5-Day BOD Test, Membrane Electrode Method ^[4] |
| 9 | Cadmium | 1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Method ^[4] |



(นางริกาญจน์ จิตตรัสกุลวไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

10 Chemical...

-๒-

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|------------------------|--|
| 10 | Chemical Oxygen Demand | 1) Open Reflux, Titrimetric method ^[4] 2) Close Reflux, Colorimetric method ^[4] 3) Closed Reflux, Titrimetric Method ^[4] |
| 11 | Chlordane | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] |
| 12 | Chromium | 1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Method ^[4] |
| 13 | Color | ADMI Weighted-Ordinate Spectrophotometric Method ^[4] |
| 14 | Copper | 1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Method ^[4] |
| 15 | Cyanide | Distillation, Colorimetric method ^[4] |
| 16 | 2,4-D | Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] |
| 17 | 4,4'-DDD | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] |
| 18 | 4,4'-DDE | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] |
| 19 | 4,4'-DDT | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] |
| 20 | Dieldrin | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] |



(นางริกาญจน์ จิตตรัสกุลวไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

และทะเบียนห้องปฏิบัติการ

21 Endosulfan I...

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|---------------------|---|
| 21 | Endosulfan I | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] |
| 22 | Endosulfan II | 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] |
| 23 | Endosulfan Sulfate | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] |
| 24 | Endrin | 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] |
| 25 | Endrin Aldehyde | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] |
| 26 | Formaldehyde | 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] |
| 27 | Free Chlorine | Distillation, Colorimetric Method ^[3] |
| 28 | Heptachlor | 1) Iodometric Method ^[4] |
| 29 | Heptachlor epoxide | 2) DPD Colorimetric Method ^[4] |
| 30 | Hexavalent Chromium | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] |
| 31 | Lead | 2) Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[4] |
| | | 1) Colorimetric Method ^[4] |
| | | 2) Extraction, Air-Acetylene Flame Method ^[4] |
| | | 3) Digestion, Direct Air-Acetylene Flame Method ^[4] |
| | | 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] |
| | | 3) Digestion, Inductively Coupled Plasma Method ^[4] |

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

32 Manganese...

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|-------------------------|--|
| 32 | Manganese | 1) Digestion, Direct Air-Acetylene Flame Method ^[4] |
| 33 | Mercury | 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] |
| 34 | Methoxychlor | 3) Digestion, Inductively Coupled Plasma Method ^[4] |
| 35 | Nickel | Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[4] |
| 36 | Oil & Grease | Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] |
| 37 | pH | 1) Digestion, Direct Air-Acetylene Flame Method ^[4] |
| 38 | Phenols | 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] |
| 39 | Selenium | 3) Digestion, Inductively Coupled Plasma Method ^[4] |
| 40 | Sulfide | 1) Liquid-Liquid, Partition-Gravimetric Method ^[4] |
| 41 | Temperature | 2) Soxhlet Extraction Method ^[4] |
| 42 | Total Dissolved Solids | Electrometric Method ^[4] |
| 43 | Total Kjeldahl Nitrogen | 1) Distillation, Chloroform Extraction Method ^[4] |
| 44 | Total Suspended Solids | 2) Distillation, Direct Photometric Method ^[4] |
| 45 | Trivalent Chromium | 1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[4] |
| | | 2) Digestion, Inductively Coupled Plasma Method ^[4] |
| | | 1) Iodometric method ^[4] |
| | | 2) Methylene blue method ^[4] |
| | | Laboratory and Field Methods ^[4] |
| | | Dried at 180 °C ^[4] |
| | | 1) Macro Kjeldahl Method ^[4] |
| | | 2) Semi-Micro Kjeldahl Method ^[4] |
| | | Dried at 103-105 °C ^[4] |
| | | 1) Digestion, Direct Air-Acetylene Flame Method; Colorimetric Method; Calculation ^[4] |
| | | 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method; Colorimetric Method; Calculation ^[4] |
| | | 3) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation ^[4] |
| 46 | Zinc | 1) Digestion, Direct Air-Acetylene Flame Method ^[4] |
| | | 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] |
| | | 3) Digestion, Inductively Coupled Plasma Method ^[4] |

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

น้ำใต้ดิน...

น้ำใต้ดิน จำนวน 123 รายการ

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|----------------------|--|
| 1 | Acenaphthene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 2 | Acetone | Purge and Trap Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 3 | Aldrin | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 4 | Anthracene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 5 | Antimony | Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾ |
| 6 | Arsenic | 1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma Method ⁽⁴⁾ |
| 7 | Atrazine | Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ |
| 8 | Barium | 1) Digestion, Direct Nitrous Oxide-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾ |
| 9 | Benz(a)anthracene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 10 | Benzene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾ |
| 11 | Benzo(b)fluoranthene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 12 | Benzo(k)fluoranthene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 13 | Benzoic acid | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 14 | Benzo(a)pyrene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 15 | Benzo(g,h,i)perylene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |

วิภา

16 Beryllium...

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|----------------------------|--|
| 16 | Beryllium | Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾ |
| 17 | Bis(2-chloroethyl)ether | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 18 | Bis(2-ethylhexyl)phthalate | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 19 | Bromodichloromethane | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾ |
| 20 | Bromoform | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾ |
| 21 | Butanol | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾ |
| 22 | Butyl benzyl phthalate | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 23 | Cadmium | 1) Digestion, Direct Air-Acetylene Flame Method ⁽⁴⁾ 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ⁽⁴⁾ 3) Digestion, Inductively Coupled Plasma Spectrometric Method ⁽⁴⁾ |
| 24 | Carbazole | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 25 | Carbon disulfide | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾ |
| 26 | Carbon tetrachloride | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾ |
| 27 | Chlordane | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ⁽⁴⁾ 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 28 | p-Chloroaniline | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ⁽⁴⁾ |
| 29 | Chlorobenzene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ⁽⁴⁾ |
| 30 | Chlorodibromomethane | Purge and Trap Gas Chromatographic/Mass spectrometric Method ⁽⁴⁾ |
| 31 | Chloroform | Purge and Trap Gas Chromatographic/Mass spectrometric Method ⁽⁴⁾ |

วิภา

32 2-Chlorophenol...

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการกลุ่มมาตรฐานวิธีการวิเคราะห์ทดสอบมลพิษ

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|----------------|---|
| 32 | 2-Chlorophenol | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 33 | Chromium | 1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4] |
| 34 | Chromium (III) | 1) Digestion, Direct Air-Acetylene Flame Method; Colorimetric Method; Calculation ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method; Colorimetric Method; Calculation ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method; Colorimetric Method; Calculation ^[4] |
| 35 | Chromium (VI) | 1) Colorimetric Method ^[4] 2) Extraction, Air-Acetylene Flame Method ^[4] |
| 36 | Chrysene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 37 | Cyanide | 1) Distillation, Titrimetric Method ^[4] 2) Distillation, Colorimetric Method ^[4] |
| 38 | 2,4-D | Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] |
| 39 | DDD | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 40 | DDE | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 41 | DDT | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |

วิภา

42 Dibenz(a,h)...

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการศูนย์มาตรฐานวิธีวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|----------------------------|--|
| 42 | Dibenz(a,h)anthracene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 43 | Di-n-butyl phthalate | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 44 | 1,2-Dichlorobenzene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 45 | 1,3-Dichlorobenzene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 46 | 1,4-Dichlorobenzene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 47 | 3,3'-Dichlorobenzidine | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 48 | 1,1-Dichloroethane | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 49 | 1,2-Dichloroethane | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 50 | 1,1-Dichloroethylene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 51 | cis-1,2-Dichloroethylene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 52 | trans-1,2-Dichloroethylene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 53 | 2,4-Dichlorophenol | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 54 | 1,2-Dichloropropane | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 55 | 1,3-Dichloropropane | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 56 | 1,3-Dichloropropene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 57 | Dieldrin | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 58 | Diethyl phthalate | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |

วิภา

59 2,4-Dimethylphenol...

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการศูนย์มาตรฐานวิธีวิเคราะห์ทดสอบมลพิษ
และทะเบียนห้องปฏิบัติการ

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|--------------------------|--|
| 59 | 2,4-Dimethylphenol | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 60 | 2,4-Dinitrophenol | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 61 | 2,4-Dinitrotoluene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 62 | 2,6-Dinitrotoluene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 63 | Di-n-Octyl phthalate | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 64 | Endosulfan | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 65 | Endrin | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 66 | Ethylbenzene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 67 | Fluoranthene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 68 | Fluorene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 69 | Heptachlor | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 70 | Heptachlor epoxide | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 71 | Hexachlorobenzene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 72 | Hexachloro-1,3-butadiene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |

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73 n-Hexane...

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการศูนย์มาตรฐานวิชาการวิเคราะห์ทดสอบมลพิษ

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|---------------------------|--|
| 73 | n-Hexane | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 74 | α-HCH | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 75 | β-HCH | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 76 | γ-HCH | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 77 | Hexachlorocyclopentadiene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 78 | Hexachloroethane | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 79 | Indeno(1,2,3-cd)pyrene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 80 | Isophorone | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 81 | Lead | 1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4] |
| 82 | Manganese | 1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4] |
| 83 | Mercury | Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[4] |
| 84 | Methanol | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |

2/10/25

85 Methoxychlor...

(นางริกาญจน์ ฉัตรสกุลวิไล)

ผู้อำนวยการศูนย์มาตรฐานวิชาการวิเคราะห์ทดสอบมลพิษ

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|---|--|
| 85 | Methoxychlor | Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] |
| 86 | Methyl bromide | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 87 | Methylene chloride | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 88 | 2-Methylphenol | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 89 | 2-Methylnaphthalene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 90 | Methyl tert-butyl ether | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 91 | Naphthalene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 92 | Nickel | 1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4] |
| 93 | Nitrobenzene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 94 | N-Nitrosodiphenylamine | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 95 | Polychlorinated Biphenyls - PCB-1016 - PCB-1221 - PCB-1232 - PCB-1242 - PCB-1248 - PCB-1254 - PCB-1260 | Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] |
| 96 | Pentachlorophenol | 1) Liquid-Liquid Extraction, Gas Chromatographic Method ^[4] 2) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |

วิมล

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97 pH...

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|---|--|
| 97 | pH | Electrometric method ^[4] |
| 98 | Phenanthrene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 99 | Phenol | 1) Distillation, Chloroform Extraction Method ^[4] 2) Distillation, Direct Photometric Method ^[4] 3) Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 100 | Pyrene | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 101 | Selenium | 1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[4] 2) Digestion, Inductively Coupled Plasma Method ^[4] |
| 102 | Silver | 1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Inductively Coupled Plasma Method ^[4] |
| 103 | Styrene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 104 | 1,1,2,2-Tetrachloroethane | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 105 | Tetrachloroethylene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 106 | Toluene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 107 | TPH (C ₅ -C ₈) | Purge and Trap, Gas Chromatographic/ Mass spectrometric Method ^[7,9] |
| 108 | TPH (C ₈ -C ₁₆) | 1) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[6,8] 2) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass spectrometric Method ^[6,9] |
| 109 | TPH (C ₁₆ -C ₃₅) | 1) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[6,8] 2) Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass spectrometric Method ^[6,9] |
| 110 | 1,2,4-Trichlorobenzene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 111 | 1,1,1-Trichloroethane | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |

วิมล

112 1,1,2-Trichloroethane...


(นางริกาญจน์ ฉัตรสกุลวิไล)

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| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|------------------------|--|
| 112 | 1,1,2-Trichloroethane | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 113 | Trichloroethylene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 114 | 2,4,5-Trichlorophenol | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 115 | 2,4,6-Trichlorophenol | Liquid-Liquid Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[4] |
| 116 | 1,3,5-Trimethylbenzene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 117 | Vanadium | Digestion, Inductively Coupled Plasma Spectrometric Method ^[4] |
| 118 | Vinyl chloride | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 119 | m-Xylene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 120 | o-Xylene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 121 | p-Xylene | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 122 | Xylene (Total) | Purge and Trap Gas Chromatographic/ Mass spectrometric Method ^[4] |
| 123 | Zinc | 1) Digestion, Direct Air-Acetylene Flame Method ^[4] 2) Digestion, Electrothermal Atomic Absorption Spectrometric Method ^[4] 3) Digestion, Inductively Coupled Plasma Spectrometric Method ^[4] |

อากาศเสีย (ปล่อยระบาย) จำนวน 27 รายการ

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|----------|--|
| 1 | Antimony | 1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] |


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 และทะเบียนห้องปฏิบัติการ

2 Arsenic...

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|-------------------|---|
| 2 | Arsenic | 1) Isokinetic Sampling, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] |
| 3 | Beryllium | Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] |
| 4 | Cadmium | 1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] |
| 5 | Carbon monoxide | Instrumental Analyzer Method ^[5] |
| 6 | Chlorine | 1) Absorption Sampling, Ion Chromatographic Method ^[5] 2) Isokinetic Sampling, Ion Chromatographic Method ^[5] |
| 7 | Chromium | 1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] |
| 8 | Cobalt | Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] |
| 9 | Copper | 1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] |
| 10 | Cresol | Adsorption Sampling, Gas Chromatographic Method ^[5] |
| 11 | Dioxin/Furans | Isokinetic Sampling, Analysis by ISO/IEC 17025 Accredited Laboratory or Analysis by Department of Industrial Works Registered Laboratory (Dioxins/Furans Analysis Approved) ^[5] |
| 12 | Hydrogen chloride | 1) Absorption Sampling, Ion Chromatographic Method ^[5] 2) Isokinetic Sampling, Ion Chromatographic Method ^[5] |
| 13 | Hydrogen Fluoride | 1) Absorption Sampling, Ion Chromatographic Method ^[5] 2) Isokinetic Sampling, Ion Chromatographic Method ^[5] |


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14 Hydrogen Sulfide...

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|-----------------------------|--|
| 14 | Hydrogen Sulfide | Absorption Sampling, Iodometric Method ^[5] |
| 15 | Lead | 1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] |
| 16 | Manganese | 1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] |
| 17 | Mercury | Isokinetic Sampling, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[5] |
| 18 | Nickel | 1) Isokinetic Sampling, Digestion, Direct Air-Acetylene Flame Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] |
| 19 | Opacity | Ringelmann's Method ^[2] |
| 20 | Oxide of Nitrogen | 1) Absorption Sampling, Ion Chromatographic Method ^[5] 2) Absorption Sampling, Phenoldisulfonic acid Method ^[5] 3) Instrumental Analyzer Method ^[5] |
| 21 | Selenium | 1) Isokinetic Sampling, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[5] 2) Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] |
| 22 | Sulfur dioxide | 1) Isokinetic Sampling, Barium-Thorin Titrimetric Method ^[5] 2) Instrumental Analyzer Method ^[5] |
| 23 | Sulfuric acid | Isokinetic Sampling, Barium-Thorin Titrimetric Method ^[5] |
| 24 | Tin | Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] |
| 25 | Total Suspended Particulate | Isokinetic Sampling, Gravimetric Method ^[5] |

26 Vanadium...


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และทะเบียนห้องปฏิบัติการ

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|----------|---|
| 26 | Vanadium | Isokinetic Sampling, Digestion, Inductively Coupled Plasma Method ^[5] |
| 27 | Xylene | 1) Adsorption Sampling, Gas Chromatographic Method ^[5] 2) Adsorption Sampling, Gas Chromatographic/Mass Spectrometric Method ^[5] |

สิ่งปลูกสร้างหรือวัสดุที่ไม่ใช้แล้ว จำนวน 34 รายการ

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|----------|--|
| 1 | Aldrin | 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 2 | Antimony | 1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,16] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 3 | Arsenic | 1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[1,6,16] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,16] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 4 | Barium | 1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] |

3) Digestion...


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และทะเบียนห้องปฏิบัติการ

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|----------------|--|
| 5 | Beryllium | 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 6 | Cadmium | 1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 7 | Chlordane | 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 8 | Chromium | 1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 9 | Chromium (III) | 1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method; Waste Extraction, Colorimetric Method; Calculation Method ^[1,6,15,17] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method; Waste Extraction, Colorimetric Method; Calculation Method ^[1,6,16,17] |



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3) Digestion...

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|---------------|--|
| 10 | Chromium (VI) | 3) Digestion, Flame Atomic Absorption Spectrometric Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^[7,8,15,17] 4) Digestion, Inductively Coupled Plasma Method; Alkaline Digestion, Colorimetric Method; Calculation Method ^[7,8,14,17] 1) Waste Extraction, Colorimetric Method ^[1,17] 2) Alkaline Digestion, Colorimetric Method ^[8,17] |
| 11 | Cobalt | 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 12 | Copper | 1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 13 | 2,4-D | 1) Waste Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,24] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[24] |
| 14 | DDD | 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 15 | DDE | 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,26] |



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3) Soxhlet...

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|------------|---|
| 16 | DDT | 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 17 | Dieldrin | 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 18 | Endrin | 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 19 | Heptachlor | 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet... |

4) Soxhlet...

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| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|--------------|---|
| 20 | Lead | 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] 1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 21 | Lindane | 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 22 | Mercury | 1) Waste Extraction, Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[1,18] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[19] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 23 | Methoxychlor | 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,22] 2) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,9,26] 3) Soxhlet Extraction, Gas Chromatographic Method ^[10,22] 4) Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 24 | Molybdenum | 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |

25 Nickel...

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| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|---|--|
| 25 | Nickel | 1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 26 | Polychlorinated Biphenyls - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260 | 1) Waste Extraction, Separatory Funnel Liquid-Liquid Extraction, Gas Chromatographic Method ^[1,9,23] 2) Soxhlet Extraction, Gas Chromatographic Method ^[10,23] |
| 27 | Pentachlorophenol | 1) Waste Extraction, Gas Chromatographic/Mass Spectrometric Method ^[1,24] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[24] |
| 28 | pH | Electrometric Method ^[30,31] |
| 29 | Selenium | 1) Waste Extraction, Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[1,6,20] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,20] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 30 | Silver | 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 31 | Thallium | 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 32 | Trichloroethylene | 1) Waste Extraction, Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[1,12,25] 2) Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[12,25] |

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33 Vanadium...

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|----------|--|
| 33 | Vanadium | 1) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 34 | Zinc | 1) Waste Extraction, Digestion, Flame Atomic Absorption Spectrometric Method ^[1,6,15] 2) Waste Extraction, Digestion, Inductively Coupled Plasma Method ^[1,6,14] 3) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 4) Digestion, Inductively Coupled Plasma Method ^[7,14] |

ดิน จำนวน 122 รายการ

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|--------------|---|
| 1 | Acenaphthene | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 2 | Acetone | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 3 | Aldrin | 1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 4 | Anthracene | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 5 | Antimony | 1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,16] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 6 | Arsenic | 1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,16] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 7 | Atrazine | Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] |
| 8 | Barium | 1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |

วิภา

(นางริกาญจน์ ฉัตรสกุลวิไล)

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9 Benz(a)anthracene...

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|----------------------------|--|
| 9 | Benz(a)anthracene | Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26] |
| 10 | Benzene | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 11 | Benzo(b)fluoranthene | Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26] |
| 12 | Benzo(k)fluoranthene | Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26] |
| 13 | Benzoic acid | Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26] |
| 14 | Benzo(a)pyrene | Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26] |
| 15 | Benzo(g,h,i)perylene | Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26] |
| 16 | Beryllium | Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 17 | Bis(2-chloroethyl)ether | Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26] |
| 18 | Bis(2-ethylhexyl)phthalate | Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26] |
| 19 | Bromodichloromethane | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 20 | Bromoform | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 21 | Butanol | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 22 | Butyl benzyl phthalate | Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26] |
| 23 | Cadmium | 1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 24 | Carbazole | Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26] |
| 25 | Carbon disulfide | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 26 | Carbon tetrachloride | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |

27 Chlordane...

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|----------------------|--|
| 27 | Chlordane | 1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26] |
| 28 | p-Chloroaniline | Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26] |
| 29 | Chlorobenzene | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 30 | Chlorodibromomethane | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 31 | Chloroform | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 32 | 2-Chlorophenol | Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26] |
| 33 | Chromium | 1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 34 | Chromium (III) | 1) Digestion, Flame Atomic Absorption Spectrometric Method; Colorimetric Method; Calculation Method ^[7,8,15,17] 2) Digestion, Inductively Coupled Plasma Method; Colorimetric Method; Calculation Method ^[7,8,14,17] |
| 35 | Chromium (VI) | Alkaline Digestion, Colorimetric Method ^[8,17] |
| 36 | Chrysene | Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26] |
| 37 | Cyanide | 1) Extraction, Distillation, Titrimetric Method ^[27,28,29] 2) Extraction, Distillation, Colorimetric Method ^[27,28,29] |
| 38 | 2,4-D | Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[24] |
| 39 | DDD | 1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26] |
| 40 | DDE | 1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26] |

41 DDT...

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|----------------------------|---|
| 41 | DDT | 1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 42 | Dibenz(a,h)anthracene | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 43 | Di-n-butyl phthalate | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 44 | 1,2-Dichlorobenzene | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 45 | 1,3-Dichlorobenzene | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 46 | 1,4-Dichlorobenzene | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 47 | 3,3'-Dichlorobenzidine | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 48 | 1,1-Dichloroethane | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 49 | 1,2-Dichloroethane | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 50 | 1,1-Dichloroethylene | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 51 | cis-1,2-Dichloroethylene | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 52 | trans-1,2-Dichloroethylene | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 53 | 2,4-Dichlorophenol | Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 54 | 1,2-Dichloropropane | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 55 | 1,3-Dichloropropane | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 56 | 1,3-Dichloropropene | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |

วิมล

57 Dieldrin...

(นางริกาญจน์ ฉัตรสกุลวิไล)

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| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|----------------------|---|
| 57 | Dieldrin | 1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 58 | Diethyl phthalate | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 59 | 2,4-Dimethylphenol | Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 60 | 2,4-Dinitrophenol | Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 61 | 2,4-Dinitrotoluene | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 62 | 2,6-Dinitrotoluene | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 63 | Di-n-Octyl phthalate | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 64 | Endosulfan | 1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 65 | Endrin | 1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 66 | Ethylbenzene | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 67 | Fluoranthene | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 68 | Fluorene | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 69 | Heptachlor | 1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |

วิมล

70 Heptachlor epoxide...

(นางริกาญจน์ ฉัตรสกุลวิไล)

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| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|---------------------------|---|
| 70 | Heptachlor epoxide | 1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 71 | Hexachlorobenzene | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 72 | Hexachloro-1,3-butadiene | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 73 | n-Hexane | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 74 | α-HCH | 1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 75 | β-HCH | 1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 76 | γ-HCH | 1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 77 | Hexachlorocyclopentadiene | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 78 | Hexachloroethane | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 79 | Indeno(1,2,3-cd)pyrene | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 80 | Isophorone | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 81 | Lead | 1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 82 | Manganese | 1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |



(นางรวิภาญจน์ นันตรสกุลวิไล)

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83 Mercury...

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|---|---|
| 83 | Mercury | 1) Digestion, Cold-Vapor Atomic Absorption Spectrometric Method ^[19] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 84 | Methanol | Ultrasonic Extraction, Direct Aqueous Injection, Gas Chromatographic Method ^[11,21] |
| 85 | Methoxychlor | 1) Ultrasonic Extraction, Gas Chromatographic Method ^[11,22] 2) Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 86 | Methyl bromide | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 87 | Methylene chloride | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 88 | 2-Methylphenol | Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 89 | 2-Methylnaphthalene | Ultrasonic Extraction, Gas Chromatographic/Mass Spectrometric Method ^[11,26] |
| 90 | Methyl tert-butyl ether | Purge and Trap, Gas Chromatographic/Mass Spectrometric Method ^[13,25] |
| 91 | Naphthalene | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 92 | Nickel | 1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 93 | Nitrobenzene | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 94 | N-Nitrosodiphenylamine | Soxhlet Extraction, Gas Chromatographic/Mass Spectrometric Method ^[10,26] |
| 95 | Polychlorinated Biphenyls - Aroclor 1016 - Aroclor 1221 - Aroclor 1232 - Aroclor 1242 - Aroclor 1248 - Aroclor 1254 - Aroclor 1260 | Soxhlet Extraction, Gas Chromatographic Method ^[10,23] |



(นางรวิภาญจน์ นันตรสกุลวิไล)

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96 Pentachlorophenol...

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|---|--|
| 96 | Pentachlorophenol | Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[24] |
| 97 | Phenanthrene | Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26] |
| 98 | Phenol | Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26] |
| 99 | Pyrene | Soxhlet Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[10,26] |
| 100 | Selenium | 1) Digestion, Hydride Generation/Atomic Absorption Spectrometric Method ^[7,20] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 101 | Silver | 1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 102 | Styrene | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 103 | 1,1,2,2-Tetrachloroethane | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 104 | Tetrachloroethylene | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 105 | Toluene | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 106 | TPH (C ₅ -C ₈) | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 107 | TPH (C ₈ -C ₁₆) | 1) Soxhlet Extraction, Gas Chromatographic Method ^[10,21] 2) Soxhlet Extraction, Gas Chromatographic/ Mass spectrometric Method ^[10,21] |
| 108 | TPH (C ₁₆ -C ₃₅) | 1) Soxhlet Extraction, Gas Chromatographic Method ^[10,21] 2) Soxhlet Extraction, Gas Chromatographic/ Mass spectrometric Method ^[10,25] |
| 109 | 1,2,4-Trichlorobenzene | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 110 | 1,1,1-Trichloroethane | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |



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111 1,1,2-Trichloroethane...

| ลำดับที่ | สารมลพิษ | วิธีวิเคราะห์ |
|----------|------------------------|--|
| 111 | 1,1,2-Trichloroethane | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 112 | Trichloroethylene | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 113 | 2,4,5-Trichlorophenol | Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26] |
| 114 | 2,4,6-Trichlorophenol | Ultrasonic Extraction, Gas Chromatographic/ Mass Spectrometric Method ^[11,26] |
| 115 | 1,3,5-Trimethylbenzene | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 116 | Vanadium | Digestion, Inductively Coupled Plasma Method ^[7,14] |
| 117 | Vinyl chloride | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 118 | m-Xylene | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 119 | o-Xylene | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 120 | p-Xylene | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 121 | Xylene (Total) | Purge and Trap, Gas Chromatographic/ Mass Spectrometric Method ^[13,25] |
| 122 | Zinc | 1) Digestion, Flame Atomic Absorption Spectrometric Method ^[7,15] 2) Digestion, Inductively Coupled Plasma Method ^[7,14] |

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และทะเบียนห้องปฏิบัติการ

ภาคผนวก ข

ใบรับรองความสามารถห้องปฏิบัติการและขอบข่ายการรับรอง
ห้องปฏิบัติการทดสอบ ตามมาตรฐาน ISO/IEC 17025
จากสำนักงานมาตรฐานอุตสาหกรรม (สมอ.)



ใบรับรองเลขที่ 20T173/1151

ใบรับรองห้องปฏิบัติการ

อาศัยอำนาจตามความในพระราชบัญญัติการมาตรฐานแห่งชาติ พ.ศ. ๒๕๕๑

เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

ออกใบรับรองฉบับนี้ให้

บริษัท ชีคอฟ จำกัด

มีห้องปฏิบัติการตั้งอยู่เลขที่

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

ได้รับการรับรองความสามารถห้องปฏิบัติการทดสอบ

ตามมาตรฐานเลขที่ มอก. 17025-2561 (ISO/IEC 17025 : 2017)

ข้อกำหนดทั่วไปว่าด้วยความสามารถห้องปฏิบัติการทดสอบและสอบเทียบ

หมายเลขการรับรองที่ ทดสอบ ๐๓๙๔

โดยมีสาขาการรับรองตามรายละเอียดแนบท้ายใบรับรอง

ตั้งแต่วันที่ ๙ กันยายน พ.ศ. ๒๕๖๓

ถึง วันที่ ๘ กันยายน พ.ศ. ๒๕๖๖

ออกให้ ณ วันที่ ๒๓ กันยายน ๒๕๖๓

(นายระกิด์ รินทกิจอนันต์)

รองเลขาธิการ ปฏิบัติราชการแทน

เลขาธิการสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม



รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ

ใบรับรองเลขที่ 20T173/1151

ชื่อห้องปฏิบัติการ

ที่อยู่

หมายเลขการรับรองที่

สถานภาพห้องปฏิบัติการ

ห้องปฏิบัติการทดสอบ บริษัท ชีคอฟ จำกัด

239 ถนนริมคลองประปา แขวงบางซื่อ เขตบางซื่อ กรุงเทพมหานคร

ทดสอบ 0394

☒ ถาวร ☐ นอกสถานที่ ☐ชั่วคราว ☐เคลื่อนที่

| สาขาการทดสอบ | รายการทดสอบ | วิธีทดสอบ |
|---|--|--|
| สาขาสิ่งแวดล้อม 1. น้ำและน้ำเสีย (water and wastewater) | - Arsenic 0.000 5 mg/l to 0.090 0 mg/l - Arsenic 0.05 mg/l to 4.50 mg/l - Barium 0.02 mg/l to 4.50 mg/l - Cadmium 0.01 mg/l to 4.50 mg/l - Chromium 0.01 mg/l to 4.50 mg/l - Copper 0.02 mg/l to 4.50 mg/l - Iron 0.05 mg/l to 9.00 mg/l - Lead 0.03 mg/l to 4.50 mg/l - Manganese 0.01 mg/l to 9.00 mg/l - Nickel 0.01 mg/l to 4.50 mg/l - Zinc 0.02 mg/l to 9.00 mg/l | - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 23 rd edition, 2017, Part 3030 F and Part 3114 C - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 23 rd edition, 2017, Part 3030 E and Part 3120 B |

รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ

ใบรับรองเลขที่ 20T173/1151

หมายเลขการรับรองที่ ทดสอบ 0394

สถานภาพห้องปฏิบัติการ ☒ ถาวร ☐ นอกสถานที่ ☐ชั่วคราว ☐เคลื่อนที่

| สาขาการทดสอบ | รายการทดสอบ | วิธีทดสอบ |
|---|---|---|
| สาขาส่งแวดล้อม | | |
| 1. น้ำและน้ำเสีย (ต่อ) (water and wastewater) (cont.) | - COD 100 mg/l to 4 000 mg/l | - Standard Methods for the Examination of Water and Wastewater, APHA, AWWA, WEF, 23 rd edition, 2017, Part 5220 D |
| 2. คุณภาพอากาศ (air quality) | | |
| 2.1 บริเวณทำงาน (workplace) | - Total dust 0.10 mg/filter to 2.00 mg/filter - Respirable dust 0.10 mg/filter to 2.00 mg/filter - Benzene 1.10 µg/tube to 420 µg/tube - Toluene 1.10 µg/tube to 420 µg/tube - Total xylenes 2.20 µg/tube to 840 µg/tube • m,p-xylene 1.10 µg/tube to 420 µg/tube • o-xylene 1.10 µg/tube to 420 µg/tube | - NIOSH Manual of Analytical Methods (NMAM), method 0500, 4 th edition, 15 th August 1994 (Exclude Sampling) - NIOSH Manual of Analytical Method(NMAM), method 0600, 4 th edition, 15 th January 1998 (Exclude Sampling) - NIOSH Manual of Analytical Methods (NMAM) , method 1501, 4 th edition, 15 th March 2003 (Exclude Sampling) |

ฉบับที่ 1 ตั้งแต่ วันที่ 9 กันยายน 2563 หน้า 2/5

กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ

ใบรับรองเลขที่ 20T173/1151

หมายเลขการรับรองที่ ทดสอบ 0394

สถานภาพห้องปฏิบัติการ ☒ ถาวร ☐ นอกสถานที่ ☐ชั่วคราว ☐เคลื่อนที่

| สาขาการทดสอบ | รายการทดสอบ | วิธีทดสอบ |
|---|--|---|
| สาขาส่งแวดล้อม | | |
| 2. คุณภาพอากาศ (ต่อ) (air quality) (cont.) | | |
| 2.2 อากาศในปล่องระบาย อากาศ (stack) | - Sulfur dioxide 1.00 mg/L to 16 000 mg/L (solution) | - US.EPA , Code of Federal Regulations, 40 CFR 60 appendix A, Method 6, July 2019 (Exclude Sampling) |
| 2.3 บรรยากาศทั่วไป (ambient air) | - Hydrogen fluoride 5 µg/sample to 400 µg/sample - Hydrogen chloride 5 µg/sample to 400 µg/sample - Volatile organic compounds (VOCs) • Chloroethene 0.05 µg/m ³ to 51.00 µg/m ³ • 1,3 - butadiene 0.04 µg/m ³ to 44.00 µg/m ³ • Bromomethane 0.08 µg/m ³ to 77.00 µg/m ³ • Acrolein 0.05 µg/m ³ to 45.00 µg/m ³ • Acrylonitrile 0.04 µg/m ³ to 43.00 µg/m ³ • Dichloromethane 0.14 µg/m ³ to 69.00 µg/m ³ • Carbon disulfide 0.06 µg/m ³ to 62.00 µg/m ³ • Trichloromethane 0.20 µg/m ³ to 97.00 µg/m ³ | - In-house method : WI-7.2-1-22 based on US,EPA, Code of Federal Regulations, 40 CFR 60 appendix A Method 26, 2019 (Exclude Sampling) - In-house method :WI-7.2-1-24 based on US.EPA , Compendium Method TO - 15, EPA / 625 / R-96 / 010b, January 1999 (Include sampling) |

ฉบับที่ 1 ตั้งแต่ วันที่ 9 กันยายน 2563 หน้า 3/5

กระทรวงอุตสาหกรรม สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ
ใบรับรองเลขที่ 20T173/1151

หมายเลขการรับรองที่ ทดสอบ 0394
สถานภาพห้องปฏิบัติการ ☒ ถาวร ☐ นอกสถานที่ ☐ชั่วคราว ☐เคลื่อนที่

| สาขาการทดสอบ | รายการทดสอบ | วิธีทดสอบ |
|---|---|---|
| สาขาสิ่งแวดล้อม 2. คุณภาพอากาศ (ต่อ) (air quality) (cont.) 2.3 บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.) | <ul style="list-style-type: none"> - Volatile organic compounds (VOCs) (cont.) <ul style="list-style-type: none"> • 1,2 - dichloroethane 0.08 $\mu\text{g}/\text{m}^3$ to 80.00 $\mu\text{g}/\text{m}^3$ • Benzene 0.06 $\mu\text{g}/\text{m}^3$ to 63.00 $\mu\text{g}/\text{m}^3$ • Carbon tetrachloride 0.25 $\mu\text{g}/\text{m}^3$ to 125 $\mu\text{g}/\text{m}^3$ • Trichloroethylene 0.21 $\mu\text{g}/\text{m}^3$ to 107 $\mu\text{g}/\text{m}^3$ • 1,2 - dichloropropane 0.18 $\mu\text{g}/\text{m}^3$ to 92.00 $\mu\text{g}/\text{m}^3$ • Tetrachloroethylene 0.27 $\mu\text{g}/\text{m}^3$ to 135 $\mu\text{g}/\text{m}^3$ • 1,2 - dibromoethane 0.31 $\mu\text{g}/\text{m}^3$ to 153 $\mu\text{g}/\text{m}^3$ • 1,1,2,2 - tetrachloroethane 0.69 $\mu\text{g}/\text{m}^3$ to 137 $\mu\text{g}/\text{m}^3$ | - In-house method :WI-7.2-1-24 US.EPA , Compendium Method TO - 15, EPA / 625 / R-96 / 010b, January 1999 (Include sampling) |

รายละเอียดแนบท้ายใบรับรองห้องปฏิบัติการทดสอบ
ใบรับรองเลขที่ 20T173/1151

หมายเลขการรับรองที่ ทดสอบ 0394
สถานภาพห้องปฏิบัติการ ☒ ถาวร ☐ นอกสถานที่ ☐ชั่วคราว ☐เคลื่อนที่

| สาขาการทดสอบ | รายการทดสอบ | วิธีทดสอบ |
|---|---|---|
| สาขาสิ่งแวดล้อม 2. คุณภาพอากาศ (ต่อ) (air quality) (cont.) 2.3 บรรยากาศทั่วไป (ต่อ) (ambient air) (cont.) | <ul style="list-style-type: none"> - Volatile organic compounds (VOCs) (cont.) <ul style="list-style-type: none"> • Benzyl chloride 0.52 $\mu\text{g}/\text{m}^3$ to 103 $\mu\text{g}/\text{m}^3$ • 1,4 - dichlorobenzene 0.24 $\mu\text{g}/\text{m}^3$ to 120 $\mu\text{g}/\text{m}^3$ | - In-house method :WI-7.2-1-24 US.EPA , Compendium Method TO - 15, EPA / 625 / R-96 / 010b, January 1999 (Include sampling) |

ออกให้ ณ วันที่ ๑3 กันยายน ๒๕๖3

(นายวีระศักดิ์ รินทงอวราชย์)
รองเลขาธิการ ปฏิบัติราชการแทน
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