

ภาคผนวกที่ 3

ใบรายงานผลการวิเคราะห์จากห้องปฏิบัติการ

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Stack Air Quality
Sampling Point : ปล่องที่ผ่านโรงกำจัดฝุ่น (Fume Plant # 1)
GPS. Coordinate : UTM (WGS84) 47P 0733506 E, 1402545 N
Sampling Date : July 24, 2024
Sampling Time : 11:30-12:30
Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E, 10
Sampling By : Mr.Watcharangkun Kongsang, Registration No. ว-099-จ-0047
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099

Quotation No. : MR2024-00106
Analysis No. : 2024-AD738-001
Received Date : July 26, 2024
Analytical Date : July 26-31, 2024
Report No. : 2024-RAAQ703
Report Date : August 20, 2024

Item	Description	Method of Analysis	Unit	Result	Standard ^{2'}	Standard ^{3'}	Standard ^{4'}
1	Fuel Type	-	-	Electric Furnace	-	-	-
2	Combustion System	-	-	Open	-	-	-
3	Stack Height	Measuring Tape	m	30.00	-	-	-
4	Stack Diameter	Measuring Tape	m	4.50	-	-	-
5	Flue Gas Temperature	Thermocouple	°C	67.67	-	-	-
6	Pressure in Stack	Incline Manometer	mmHg	754.59	-	-	-
7	Oxygen Rate	Electrochemical Sensor	%	20.42	-	-	-
8	Moisture	Condensation Method	%	3.11	-	-	-
9	Air Velocity	Type S Pitot Tube	m/s	9.00	-	-	-
10	Volumetric Flow Rate	Calculate	Nm ³ /hr	433,936	-	-	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	515,635	-	-	-
12	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	ppm	<1.0	800	60	-
13	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	mg/m ³	<2.6	2,096	157	-
14	Oxide of Nitrogen (NO _x) ^{1'}	Instrumental Analyzer Method	ppm	3.2	200	200	-
15	Oxide of Nitrogen (NO _x) ^{1'}	Instrumental Analyzer Method	mg/m ³	6.0	376	376	-
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	15	240	320	40
17	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	ppm	22	-	690	-
18	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	mg/m ³	25	-	790	-

Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.

^{2'} Notification of the Ministry of Science Technology and Environment dated March 9, B.E.2544 (2001), published in the Royal Government Gazette, Vol.118 Part 37D dated May 8, B.E.2544 (2001). (Existing Source)

^{3'} Notification of the Ministry of Industry B.E.2549 (2006), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.123 Special Part 125D dated December 4, B.E.2549 (2006).

^{4'} มาตรฐานที่กำหนดตามผลการพิจารณาการวิเคราะห์ผลกระทบสิ่งแวดล้อม โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง ของบริษัท เหล็กก่อสร้างสยาม จำกัด (ปัจจุบันเปลี่ยนชื่อเป็นบริษัท ทาทา สตีล การผลิต (ประเทศไทย) จำกัด (มหาชน) สาขาลำดับที่ 00005)



Not-S

(Ms.Natnicha Sermmatiwong)

Laboratory Reviewer No. ว-099-ค-0012

Ramita

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Stack Air Quality
Sampling Point : ปล่องที่ผ่านโรงกำจัดฝุ่น (Fume Plant # 2)
GPS. Coordinate : UTM (WGS84) 47P 0733518 E, 1402528 N
Sampling Date : July 24, 2024
Sampling Time : 10:20-11:20
Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E, 10
Sampling By : Mr.Watcharangkun Kongsang, Registration No. ว-099-จ-0047
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099

Quotation No. : MR2024-00106
Analysis No. : 2024-AD738-002
Received Date : July 26, 2024
Analytical Date : July 26-31, 2024
Report No. : 2024-RAAQ704
Report Date : August 20, 2024

Item	Description	Method of Analysis	Unit	Result	Standard ^{2'}	Standard ^{3'}	Standard ^{4'}
1	Fuel Type	-	-	Electric Furnace	-	-	-
2	Combustion System	-	-	Open	-	-	-
3	Stack Height	Measuring Tape	m	30.00	-	-	-
4	Stack Diameter	Measuring Tape	m	3.70	-	-	-
5	Flue Gas Temperature	Thermocouple	°C	97.50	-	-	-
6	Pressure in Stack	Incline Manometer	mmHg	753.22	-	-	-
7	Oxygen Rate	Electrochemical Sensor	%	20.38	-	-	-
8	Moisture	Condensation Method	%	3.27	-	-	-
9	Air Velocity	Type S Pitot Tube	m/s	19.28	-	-	-
10	Volumetric Flow Rate	Calculate	Nm ³ /hr	575,656	-	-	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	746,568	-	-	-
12	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	ppm	<1.0	800	60	-
13	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	mg/m ³	<2.6	2,096	157	-
14	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	ppm	11	200	200	-
15	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	mg/m ³	20	376	376	-
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	8.6	240	320	40
17	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	ppm	20	-	690	-
18	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	mg/m ³	23	-	790	-

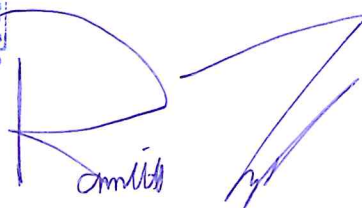
Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.
^{2'} Notification of the Ministry of Science Technology and Environment dated March 9, B.E.2544 (2001), published in the Royal Government Gazette, Vol.118 Part 37D dated May 8, B.E.2544 (2001). (Existing Source)
^{3'} Notification of the Ministry of Industry B.E.2549 (2006), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.123 Special Part 125D dated December 4, B.E.2549 (2006).
^{4'} มาตรฐานที่กำหนดตามผลการพิจารณาการวิเคราะห์ผลกระทบสิ่งแวดล้อม โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง ของบริษัท เหล็กก่อสร้างสยาม จำกัด (ปัจจุบันเปลี่ยนชื่อเป็นบริษัท ทาทา สตีล การผลิต (ประเทศไทย) จำกัด (มหาชน) สาขาลำดับที่ 00005)



Not-S

(Ms.Natnicha Sermmatiwong)

Laboratory Reviewer No. ว-099-ค-0012



(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Stack Air Quality
Sampling Point : ปล่องของเตาอบเหล็กแห่ง (RHF)
GPS. Coordinate : UTM (WGS84) 47P 0733481 E, 1402417 N
Sampling Date : July 24, 2024
Sampling Time : 13:00-13:58
Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E, 10
Sampling By : Mr.Watcharangkun Kongsang, Registration No. ๖-099-จ-0047
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory Registration No.๖-099

Quotation No. : MR2024-00106
Analysis No. : 2024-AD738-003
Received Date : July 26, 2024
Analytical Date : July 26-31, 2024
Report No. : 2024-RAAQ705
Report Date : August 20, 2024

Item	Description	Method of Analysis	Unit	Result		Standard ^{2'}	Standard ^{3'}	Standard ^{4'}
				Actual Condition	Convert to Excess Oxygen 7%			
1	Fuel Type	-	-	Natural Gas		-	-	-
2	Combustion System	-	-	Close		-	-	-
3	Stack Height	Measuring Tape	m	63.00		-	-	-
4	Stack Diameter	Measuring Tape	m	1.80		-	-	-
5	Flue Gas Temperature	Thermocouple	°C	316.25	-	-	-	-
6	Pressure in Stack	Incline Manometer	mmHg	753.33	-	-	-	-
7	Oxygen Rate	Electrochemical Sensor	%	12.42	-	-	-	-
8	Moisture	Condensation Method	%	4.21	-	-	-	-
9	Air Velocity	Type S Pitot Tube	m/s	7.50	-	-	-	-
10	Volumetric Flow Rate ^{1'}	Calculate	Nm ³ /hr	33,005	-	-	-	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	68,734	-	-	-	-
12	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	ppm	<1.0	<1.0	800	60	60
13	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	mg/m ³	<2.6	<2.6	2,096	157	157
14	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	ppm	36	59	200	200	150
15	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	mg/m ³	67	110	376	376	282
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	26	43	240	320	-
17	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	ppm	4.6	7.5	-	690	-
18	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	mg/m ³	5.2	8.5	-	790	-

Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.

^{2'} Notification of the Ministry of Science Technology and Environment dated March 9, B.E.2544 (2001), published in the Royal Government Gazette, Vol.118 Part 37D dated May 8, B.E.2544 (2001). (Existing Source)

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^{4'} มาตรฐานที่กำหนดตามผลการพิจารณาการวิเคราะห์ผลกระทบสิ่งแวดล้อม โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง ของบริษัท เหล็กก่อสร้างสยาม จำกัด (ปัจจุบันเปลี่ยนชื่อเป็นบริษัท ทาทา สตีล การผลิต (ประเทศไทย) จำกัด (มหาชน) สาขาลำดับที่ 00005)



Not-S
(Ms.Natnicha Sermmatiwong)

Laboratory Reviewer No. ๖-099-ค-0012

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ๖-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Stack Air Quality
Sampling Point : ปล่องที่ผ่านโรงกำจัดฝุ่น (Fume Plant # 1)
GPS. Coordinate : UTM (WGS84) 47P 0733506 E, 1402545 N
Sampling Date : October 19, 2024
Sampling Time : 09:40-10:40
Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E, 10
Sampling By : Mr.Wanchana Seehamart, Registration No. ว-099-ค-0004
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
 Registration No.ว-099

Quotation No. : MR2024-00106
Analysis No. : 2024-AF231-001
Received Date : October 21, 2024
Analytical Date : October 21-25, 2024
Report No. : 2024-RAAV944
Report Date : October 29, 2024

Item	Description	Method of Analysis	Unit	Result	Standard ^{2'}	Standard ^{3'}	Standard ^{4'}
1	Fuel Type	-	-	Electric Furnace	-	-	-
2	Combustion System	-	-	Open	-	-	-
3	Stack Height	Measuring Tape	m	30.00	-	-	-
4	Stack Diameter	Measuring Tape	m	4.50	-	-	-
5	Flue Gas Temperature	Thermocouple	°C	56.17	-	-	-
6	Pressure in Stack	Incline Manometer	mmHg	757.50	-	-	-
7	Oxygen Rate	Electrochemical Sensor	%	20.67	-	-	-
8	Moisture	Condensation Method	%	4.35	-	-	-
9	Air Velocity	Type S Pitot Tube	m/s	9.31	-	-	-
10	Volumetric Flow Rate	Calculate	Nm ³ /hr	460,070	-	-	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	533,072	-	-	-
12	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	ppm	<1.0	800	60	-
13	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	mg/m ³	<2.6	2,096	157	-
14	Oxide of Nitrogen (NO _x) ^{1'}	Instrumental Analyzer Method	ppm	7.8	200	200	-
15	Oxide of Nitrogen (NO _x) ^{1'}	Instrumental Analyzer Method	mg/m ³	15	376	376	-
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	2.5	240	320	40
17	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	ppm	40	-	690	-
18	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	mg/m ³	45	-	790	-

Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.

^{2'} Notification of the Ministry of Science Technology and Environment dated March 9, B.E.2544 (2001), published in the Royal Government Gazette, Vol.118 Part 37D dated May 8, B.E.2544 (2001). (Existing Source)

^{3'} Notification of the Ministry of Industry B.E.2549 (2006), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.123 Special Part 125D dated December 4, B.E.2549 (2006).

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Not. S

(Ms.Natnicha Sermmatiwong)

Laboratory Reviewer No. ว-099-ค-0012



(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)

Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150

Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง

Sampling Source : Stack Air Quality

Sampling Point : ปล่องที่ผ่านโรงกำจัดฝุ่น (Fume Plant # 2)

GPS. Coordinate : UTM (WGS84) 47P 0733518 E, 1402528 N

Sampling Date : October 19, 2024

Sampling Time : 08:40-09:30

Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E, 10

Sampling By : Mr.Wanchana Seehamart, Registration No. ว-099-ค-0004

Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099

Quotation No. : MR2024-00106

Analysis No. : 2024-AF231-002

Received Date : October 21, 2024

Analytical Date : October 21-25, 2024

Report No. : 2024-RAAV945

Report Date : October 29, 2024

Item	Description	Method of Analysis	Unit	Result	Standard ^{2'}	Standard ^{3'}	Standard ^{4'}
1	Fuel Type	-	-	Electric Furnace	-	-	-
2	Combustion System	-	-	Open	-	-	-
3	Stack Height	Measuring Tape	m	30.00	-	-	-
4	Stack Diameter	Measuring Tape	m	3.70	-	-	-
5	Flue Gas Temperature	Thermocouple	°C	79.67	-	-	-
6	Pressure in Stack	Incline Manometer	mmHg	757.07	-	-	-
7	Oxygen Rate	Electrochemical Sensor	%	19.99	-	-	-
8	Moisture	Condensation Method	%	5.40	-	-	-
9	Air Velocity	Type S Pitot Tube	m/s	18.66	-	-	-
10	Volumetric Flow Rate	Calculate	Nm ³ /hr	575,513	-	-	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	722,747	-	-	-
12	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	ppm	<1.0	800	60	-
13	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	mg/m ³	<2.6	2,096	157	-
14	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	ppm	12	200	200	-
15	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	mg/m ³	22	376	376	-
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	2.7	240	320	40
17	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	ppm	15	-	690	-
18	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	mg/m ³	17	-	790	-

Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.

^{2'} Notification of the Ministry of Science Technology and Environment dated March 9, B.E.2544 (2001), published in the Royal Government Gazette, Vol.118 Part 37D dated May 8, B.E.2544 (2001). (Existing Source)

^{3'} Notification of the Ministry of Industry B.E.2549 (2006), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.123 Special Part 125D dated December 4, B.E.2549 (2006).

^{4'} มาตรฐานที่กำหนดตามผลการพิจารณาการวิเคราะห์ผลกระทบสิ่งแวดล้อม โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง ของบริษัท เหล็กก่อสร้างสยาม จำกัด (ปัจจุบันเปลี่ยนชื่อเป็นบริษัท ทาทา สตีล การผลิต (ประเทศไทย) จำกัด (มหาชน) สาขาลำดับที่ 00005)



Not. S

(Ms.Natnicha Sermmatiwong)

Laboratory Reviewer No. ว-099-ค-0012

Ramita

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Stack Air Quality
Sampling Point : ปล่องของเตาอบเหล็กแท่ง (RHF)
GPS. Coordinate : UTM (WGS84) 47P 0733481 E, 1402417 N
Sampling Date : October 19, 2024
Sampling Time : 09:40-10:38
Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E, 10
Sampling By : Mr.Wanchana Seehamart, Registration No. ว-099-ค-0004
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory Registration No.ว-099

Quotation No. : MR2024-00106
Analysis No. : 2024-AF231-003
Received Date : October 21, 2024
Analytical Date : October 21-25, 2024
Report No. : 2024-RAAV946
Report Date : October 29, 2024

Item	Description	Method of Analysis	Unit	Result		Standard ²	Standard ³	Standard ⁴
				Actual Condition	Convert to Excess Oxygen 7%			
1	Fuel Type	-	-	Natural Gas		-	-	-
2	Combustion System	-	-	Close		-	-	-
3	Stack Height	Measuring Tape	m	63.00		-	-	-
4	Stack Diameter	Measuring Tape	m	1.80		-	-	-
5	Flue Gas Temperature	Thermocouple	°C	395.83	-	-	-	-
6	Pressure in Stack	Incline Manometer	mmHg	757.84	-	-	-	-
7	Oxygen Rate	Electrochemical Sensor	%	8.76	-	-	-	-
8	Moisture	Condensation Method	%	5.20	-	-	-	-
9	Air Velocity	Type S Pitot Tube	m/s	8.05	-	-	-	-
10	Volumetric Flow Rate ^{1'}	Calculate	Nm ³ /hr	31,057	-	-	-	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	73,740	-	-	-	-
12	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	ppm	<1.0	<1.0	800	60	60
13	Sulfur Dioxide (SO ₂) ^{1'}	Instrumental Analyzer Method	mg/m ³	<2.6	<2.6	2,096	157	157
14	Oxide of Nitrogen (NO _x) ^{1'}	Instrumental Analyzer Method	ppm	33	38	200	200	150
15	Oxide of Nitrogen (NO _x) ^{1'}	Instrumental Analyzer Method	mg/m ³	63	72	376	376	282
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	16	18	240	320	-
17	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	ppm	9.7	11	-	690	-
18	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	mg/m ³	11	13	-	790	-

Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.

^{2'} Notification of the Ministry of Science Technology and Environment dated March 9, B.E.2544 (2001), published in the Royal Government Gazette, Vol.118 Part 37D dated May 8, B.E.2544 (2001). (Existing Source)

^{3'} Notification of the Ministry of Industry B.E.2549 (2006), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.123 Special Part 125D dated December 4, B.E.2549 (2006).

^{4'} มาตรฐานที่กำหนดตามผลการพิจารณาการวิเคราะห์ผลกระทบต่อสิ่งแวดล้อม โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง ของบริษัท เหล็กก่อสร้างสยาม จำกัด (ปัจจุบันเปลี่ยนชื่อเป็นบริษัท ทาทา สตีล การผลิต (ประเทศไทย) จำกัด (มหาชน) สาขาลำดับที่ 00005)



Nat. S

(Ms.Natnicha Sermmatiwong)

Laboratory Reviewer No. ว-099-ค-0012

Ramita

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Ambient Air Quality
Sampling Point : โรงพยาบาลส่งเสริมสุขภาพตำบลมาบตาพุด ตำบลมาบตาพุด อำเภอเมืองระยอง จังหวัดระยอง (ทางทิศเหนือของโครงการ)
GPS. Coordinate : UTM (WGS84) 47P 0735183 E, 1405878 N
Sampling Date : October 18-21, 2024
Sampling Time : 12:57
Sampling Method : U.S. EPA 40 CFR Part 50
Sampling By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Quotation No. : MR2024-00106
Analysis No. : 2024-AF301
Received Date : October 24, 2024
Analytical Date : October 24-November 1, 2024
Report No. : 2024-RAAW529
Report Date : November 1, 2024

Parameter	Unit	Method of Analysis	Result			Standard ^{1'}
			Oct 18-19, 24	Oct 19-20, 24	Oct 20-21, 24	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	High-Volume, United States Environment Protection Agency (Exclude sampling)	0.041	0.039	0.043	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	High-Volume, United States Environment Protection Agency (Exclude sampling)	0.023	0.020	0.024	0.120
Sulfur Dioxide (SO ₂) 24 Hours Average	ppm	Absorption, Pararosaniline	<0.003	<0.003	<0.003	0.120

Remark : ^{1'} Notification of National Environmental Board, No.10, B.E.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, B.E.2538 (1995) and Notification No.24, B.E.2547 (2004), published in the Royal Government Gazette No.121 Special Part 104D dated September 22, B.E.2547 (2004), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).



Nat. S

(Ms.Natnicha Sermmawong)
Laboratory Reviewer



(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Ambient Air Quality
Sampling Point : ริมรั้วโรงงานทางด้านทิศเหนือ
GPS. Coordinate : UTM (WGS84) 47P 0733500 E, 1402607 N
Sampling Date : October 18-21, 2024
Sampling Time : 11:15
Sampling Method : U.S. EPA 40 CFR Part 50
Sampling By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : MR2024-00106
Analysis No. : 2024-AF301
Received Date : October 24, 2024
Analytical Date : October 24-November 1, 2024
Report No. : 2024-RAAW527
Report Date : November 1, 2024

Parameter	Unit	Method of Analysis	Result			Standard ^{1'}
			Oct 18-19, 24	Oct 19-20, 24	Oct 20-21, 24	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	High-Volume, United States Environment Protection Agency (Exclude sampling)	0.051	0.063	0.058	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	High-Volume, United States Environment Protection Agency (Exclude sampling)	0.026	0.030	0.032	0.120
Sulfur Dioxide (SO ₂) 24 Hours Average	ppm	Absorption, Pararosaniline	<0.003	<0.003	<0.003	0.120

Remark : ^{1'} Notification of National Environmental Board, No.10, B.E.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, B.E.2538 (1995) and Notification No.24, B.E.2547 (2004), published in the Royal Government Gazette No.121 Special Part 104D dated September 22, B.E.2547 (2004), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).

Ncl. S
(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer

(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Ambient Air Quality
Sampling Point : ริมรั้วโรงงานทางด้านทิศใต้
GPS. Coordinate : UTM (WGS84) 47P 0733149 E, 1402371 N
Sampling Date : October 18-21, 2024
Sampling Time : 11:52
Sampling Method : U.S. EPA 40 CFR Part 50
Sampling By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : MR2024-00106
Analysis No. : 2024-AF301
Received Date : October 24, 2024
Analytical Date : October 24-November 1, 2024
Report No. : 2024-RAAW528
Report Date : November 1, 2024

Parameter	Unit	Method of Analysis	Result			Standard ^{1'}
			Oct 18-19, 24	Oct 19-20, 24	Oct 20-21, 24	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	High-Volume, United States Environment Protection Agency (Exclude sampling)	0.052	0.071	0.048	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	High-Volume, United States Environment Protection Agency (Exclude sampling)	0.029	0.031	0.023	0.120
Sulfur Dioxide (SO ₂) 24 Hours Average	ppm	Absorption, Pararosaniline	<0.003	<0.003	<0.003	0.120

Remark : ^{1'} Notification of National Environmental Board, No.10, B.E.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, B.E.2538 (1995) and Notification No.24, B.E.2547 (2004), published in the Royal Government Gazette No.121 Special Part 104D dated September 22, B.E.2547 (2004), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).



Ncl. S

(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer

R

(Ms.Ramita Taengthai)
Laboratory Supervisor

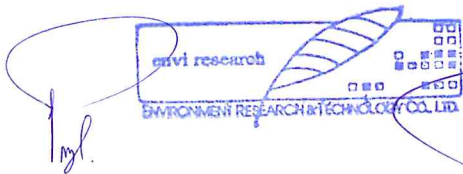
ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Ambient Air Quality
Measured Point : โรงพยาบาลส่งเสริมสุขภาพตำบลมาตาพุด ตำบลมาตาพุด อำเภอเมืองระยอง จังหวัดระยอง
(ทางทิศเหนือของโครงการ)
GPS. Coordinate : UTM (WGS84) 47P 0735183 E, 1405878 N
Measured Date : October 18-21, 2024
Measured By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : NOx Chemiluminescence Analyzer API Model 200A Serial Number 56

Quotation No. : MR2024-00106
Analysis No. : 2024-AF301-007
Report No. : 2024-RAAW259
Report Date : November 5, 2024

Interval Time	Result NO ₂ (ppm)			Standard ^{1'}
	Oct 18-19, 24	Oct 19-20, 24	Oct 20-21, 24	
13:00-14:00	0.0098	0.0094	0.0093	
14:00-15:00	0.0125	0.0104	0.0093	
15:00-16:00	0.0153	0.0097	0.0161	
16:00-17:00	0.0185	0.0203	0.0100	
17:00-18:00	0.0182	0.0106	0.0159	
18:00-19:00	0.0242	0.0152	0.0117	
19:00-20:00	0.0258	0.0163	0.0125	
20:00-21:00	0.0243	0.0163	0.0138	
21:00-22:00	0.0194	0.0126	0.0131	
22:00-23:00	0.0191	0.0115	0.0126	
23:00-00:00	0.0156	0.0091	0.0112	
00:00-01:00	0.0129	0.0068	0.0107	
01:00-02:00	0.0127	0.0072	0.0096	
02:00-03:00	0.0152	0.0051	0.0096	
03:00-04:00	0.0159	0.0064	0.0119	
04:00-05:00	0.0141	0.0091	0.0065	
05:00-06:00	0.0111	0.0074	0.0108	
06:00-07:00	0.0123	0.0077	0.0113	
07:00-08:00	0.0109	0.0117	0.0143	
08:00-09:00	0.0119	0.0101	0.0124	
09:00-10:00	0.0114	0.0096	0.0088	
10:00-11:00	0.0087	0.0089	0.0096	
11:00-12:00	0.0094	0.0094	0.0090	
12:00-13:00	0.0133	0.0106	0.0122	
24 Hours Average	0.0151	0.0105	0.0113	-
1 Hour Maximum	0.0258	0.0203	0.0161	0.17

Remark : ^{1'} Notification of National Environmental Board, No.10, B.E.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, B.E.2538 (1995), Notification No.28, B.E.2550 (2007), published in the Royal Government Gazette No.124 Special Part 58D dated May 14, B.E.2550 (2007) and Notification No.33, B.E.2552 (2009), published in the Royal Government Gazette No.126 Special Part 114D dated August 14, B.E.2552 (2009), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).



(Ms.Piyatida Pradangkho)
Laboratory Reviewer

(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Ambient Air Quality
Measured Point : ริมรั้วโรงงานทางด้านทิศเหนือ
GPS. Coordinate : UTM (WGS84) 47P 0733500 E, 1402607 N
Measured Date : October 18-21, 2024
Measured By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : NOx Chemiluminescence Analyzer Horiba Model APNA-370 Serial Number M4286P23

Quotation No. : MR2024-00106
Analysis No. : 2024-AF301-001
Report No. : 2024-RAAW255
Report Date : November 5, 2024

Interval Time	Result NO ₂ (ppm)			Standard ^{1'}
	Oct 18-19, 24	Oct 19-20, 24	Oct 20-21, 24	
11:00-12:00	0.0076	0.0080	0.0090	
12:00-13:00	0.0084	0.0131	0.0081	
13:00-14:00	0.0077	0.0166	0.0067	
14:00-15:00	0.0128	0.0160	0.0054	
15:00-16:00	0.0092	0.0101	0.0059	
16:00-17:00	0.0157	0.0075	0.0080	
17:00-18:00	0.0235	0.0088	0.0078	
18:00-19:00	0.0212	0.0086	0.0065	
19:00-20:00	0.0284	0.0076	0.0053	
20:00-21:00	0.0218	0.0059	0.0072	
21:00-22:00	0.0170	0.0096	0.0118	
22:00-23:00	0.0151	0.0116	0.0112	
23:00-00:00	0.0112	0.0082	0.0120	
00:00-01:00	0.0093	0.0072	0.0080	
01:00-02:00	0.0090	0.0079	0.0090	
02:00-03:00	0.0098	0.0076	0.0095	
03:00-04:00	0.0091	0.0074	0.0073	
04:00-05:00	0.0117	0.0077	0.0056	
05:00-06:00	0.0131	0.0076	0.0051	
06:00-07:00	0.0106	0.0092	0.0078	
07:00-08:00	0.0126	0.0076	0.0092	
08:00-09:00	0.0114	0.0115	0.0071	
09:00-10:00	0.0133	0.0104	0.0064	
10:00-11:00	0.0079	0.0074	0.0110	
24 Hours Average	0.0132	0.0093	0.0080	-
1 Hour Maximum	0.0284	0.0166	0.0120	0.17

Remark : ^{1'} Notification of National Environmental Board, No.10, B.E.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, B.E.2538 (1995), Notification No.28, B.E.2550 (2007), published in the Royal Government Gazette No.124 Special Part 58D dated May 14, B.E.2550 (2007) and Notification No.33, B.E.2552 (2009), published in the Royal Government Gazette No.126 Special Part 114D dated August 14, B.E.2552 (2009), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).

(Ms.Piyatida Pradangkho)
Laboratory Reviewer

(Ms.Panicha Promchai)
Laboratory Supervisor


ANALYSIS REPORT

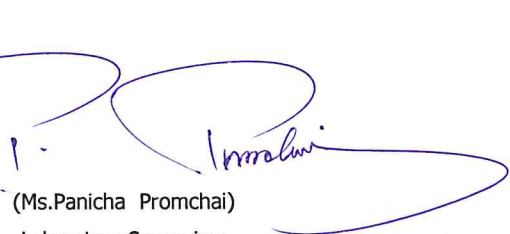
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Ambient Air Quality
Measured Point : ริมรั้วโรงงานทางด้านทิศใต้
GPS. Coordinate : UTM (WGS84) 47P 0733149 E, 1402371 N
Measured Date : October 18-21, 2024
Measured By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : NOx Chemiluminescence Analyzer API Model 200A Serial Number 1257

Quotation No. : MR2024-00106
Analysis No. : 2024-AF301-004
Report No. : 2024-RAAW257
Report Date : November 5, 2024

Interval Time	Result NO ₂ (ppm)			Standard ^{1'}
	Oct 18-19, 24	Oct 19-20, 24	Oct 20-21, 24	
12:00-13:00	0.0076	0.0080	0.0052	
13:00-14:00	0.0075	0.0093	0.0052	
14:00-15:00	0.0070	0.0075	0.0044	
15:00-16:00	0.0055	0.0066	0.0050	
16:00-17:00	0.0055	0.0065	0.0051	
17:00-18:00	0.0066	0.0065	0.0050	
18:00-19:00	0.0086	0.0119	0.0048	
19:00-20:00	0.0082	0.0097	0.0048	
20:00-21:00	0.0112	0.0064	0.0071	
21:00-22:00	0.0100	0.0073	0.0055	
22:00-23:00	0.0105	0.0076	0.0058	
23:00-00:00	0.0088	0.0088	0.0060	
00:00-01:00	0.0081	0.0070	0.0041	
01:00-02:00	0.0075	0.0067	0.0037	
02:00-03:00	0.0074	0.0071	0.0051	
03:00-04:00	0.0091	0.0070	0.0048	
04:00-05:00	0.0079	0.0069	0.0038	
05:00-06:00	0.0082	0.0067	0.0037	
06:00-07:00	0.0104	0.0061	0.0050	
07:00-08:00	0.0115	0.0072	0.0048	
08:00-09:00	0.0087	0.0078	0.0058	
09:00-10:00	0.0092	0.0076	0.0062	
10:00-11:00	0.0089	0.0094	0.0066	
11:00-12:00	0.0080	0.0074	0.0069	
24 Hours Average	0.0084	0.0076	0.0052	-
1 Hour Maximum	0.0115	0.0119	0.0071	0.17

Remark : ^{1'} Notification of National Environmental Board, No.10, B.E.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, B.E.2538 (1995), Notification No.28, B.E.2550 (2007), published in the Royal Government Gazette No.124 Special Part 58D dated May 14, B.E.2550 (2007) and Notification No.33, B.E.2552 (2009), published in the Royal Government Gazette No.126 Special Part 114D dated August 14, B.E.2552 (2009), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).


 (Ms.Piyatida Pradangkho)
 Laboratory Reviewer


 (Ms.Panicha Promchai)
 Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Ambient Air Quality
Measured Point : โรงพยาบาลส่งเสริมสุขภาพตำบลมาตาพุด ตำบลมาตาพุด อำเภอเมืองระยอง จังหวัดระยอง (ทางทิศเหนือของโครงการ)
GPS. Coordinate : UTM (WGS84) 47P 0735183 E, 1405878 N
Measured Date : October 18-21, 2024
Measured By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : CO NDIR Analyzer Horiba Model APMA-370 Serial Number Y05LRYAD

Quotation No. : MR2024-00106
Analysis No. : 2024-AF301-007
Report No. : 2024-RAAW260
Report Date : November 5, 2024

Interval Time	Result CO (ppm)						Standard ^{1'}
	Oct 18-19, 24		Oct 19-20, 24		Oct 20-21, 24		
	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	
13:00-14:00	0.9	-	0.8	0.6	0.5	0.6	
14:00-15:00	0.8	-	0.7	0.6	0.5	0.6	
15:00-16:00	0.9	-	0.7	0.6	0.5	0.6	
16:00-17:00	0.9	-	0.8	0.7	0.5	0.5	
17:00-18:00	0.7	-	0.5	0.7	0.5	0.5	
18:00-19:00	0.6	-	0.5	0.7	0.6	0.5	
19:00-20:00	0.6	-	0.5	0.6	0.6	0.5	
20:00-21:00	1.0	0.8	0.5	0.6	0.8	0.6	
21:00-22:00	0.7	0.8	0.5	0.6	0.7	0.6	
22:00-23:00	0.6	0.8	0.5	0.6	0.7	0.6	
23:00-00:00	0.6	0.7	0.5	0.5	0.7	0.6	
00:00-01:00	0.7	0.7	0.5	0.5	0.8	0.7	
01:00-02:00	0.5	0.7	0.6	0.5	0.5	0.7	
02:00-03:00	0.5	0.6	0.5	0.5	0.4	0.6	
03:00-04:00	0.5	0.6	0.6	0.5	0.6	0.6	
04:00-05:00	0.3	0.6	0.6	0.5	0.5	0.6	
05:00-06:00	0.4	0.5	0.7	0.6	0.5	0.6	
06:00-07:00	0.4	0.5	0.8	0.6	0.5	0.6	
07:00-08:00	0.4	0.5	0.8	0.6	0.7	0.6	
08:00-09:00	0.4	0.4	0.8	0.7	0.6	0.5	
09:00-10:00	0.5	0.4	0.6	0.7	0.6	0.6	
10:00-11:00	0.7	0.4	0.6	0.7	0.6	0.6	
11:00-12:00	0.8	0.5	0.6	0.7	0.5	0.6	
12:00-13:00	0.6	0.5	0.5	0.7	0.5	0.6	
24 Hours Average	0.6	-	0.6	-	0.6	-	-
1 Hour Maximum	1.0	-	0.8	-	0.8	-	30
8 Hours Maximum	-	0.8	-	0.7	-	0.7	9

Remark : ^{1'} Notification of National Environmental Board, No.10, B.E.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, B.E.2538 (1995), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).

(Ms.Piyatida Pradangkho)
Laboratory Reviewer

(Ms.Panicha Promchai)
Laboratory Supervisor


ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Ambient Air Quality
Measured Point : รันรั้วโรงงานทางด้านทิศเหนือ
GPS. Coordinate : UTM (WGS84) 47P 0733500 E, 1402607 N
Measured Date : October 18-21, 2024
Measured By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : CO NDIR Analyzer Horiba Model APMA-360CE Serial Number 576876072

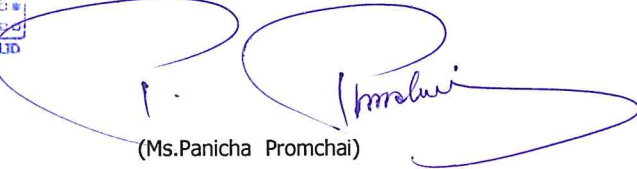
Quotation No. : MR2024-00106
Analysis No. : 2024-AF301-001
Report No. : 2024-RAAW256
Report Date : November 5, 2024

Interval Time	Result CO (ppm)						Standard ^{1'}
	Oct 18-19, 24		Oct 19-20, 24		Oct 20-21, 24		
	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	
11:00-12:00	0.6	-	0.5	0.6	0.4	0.5	
12:00-13:00	0.7	-	0.6	0.6	0.5	0.5	
13:00-14:00	0.7	-	0.6	0.6	0.4	0.5	
14:00-15:00	1.0	-	0.6	0.6	0.4	0.5	
15:00-16:00	0.6	-	0.6	0.6	0.4	0.5	
16:00-17:00	0.6	-	0.6	0.6	0.5	0.5	
17:00-18:00	0.9	-	0.6	0.6	0.5	0.5	
18:00-19:00	0.7	0.7	0.5	0.6	0.5	0.4	
19:00-20:00	0.8	0.8	0.5	0.6	0.5	0.5	
20:00-21:00	0.7	0.8	0.5	0.6	0.5	0.5	
21:00-22:00	0.7	0.8	0.5	0.6	0.5	0.5	
22:00-23:00	0.8	0.7	0.6	0.6	0.5	0.5	
23:00-00:00	0.7	0.7	0.6	0.6	0.5	0.5	
00:00-01:00	0.8	0.8	0.6	0.6	0.4	0.5	
01:00-02:00	0.7	0.7	0.6	0.6	0.5	0.5	
02:00-03:00	0.6	0.7	0.6	0.6	0.5	0.5	
03:00-04:00	0.6	0.7	0.6	0.6	0.5	0.5	
04:00-05:00	0.6	0.7	0.5	0.6	0.5	0.5	
05:00-06:00	0.7	0.7	0.5	0.6	0.5	0.5	
06:00-07:00	0.8	0.7	0.6	0.6	0.5	0.5	
07:00-08:00	0.8	0.7	0.5	0.6	0.6	0.5	
08:00-09:00	0.7	0.7	0.5	0.6	0.5	0.5	
09:00-10:00	0.6	0.7	0.5	0.5	0.4	0.5	
10:00-11:00	0.5	0.7	0.6	0.5	0.5	0.5	
24 Hours Average	0.7	-	0.6	-	0.5	-	-
1 Hour Maximum	1.0	-	0.6	-	0.6	-	30
8 Hours Maximum	-	0.8	-	0.6	-	0.5	9

Remark : ^{1'} Notification of National Environmental Board, No.10, B.E.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, B.E.2538 (1995), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).



(Ms.Piyatida Pradangkho)
Laboratory Reviewer



(Ms.Panicha Promchai)
Laboratory Supervisor


ANALYSIS REPORT

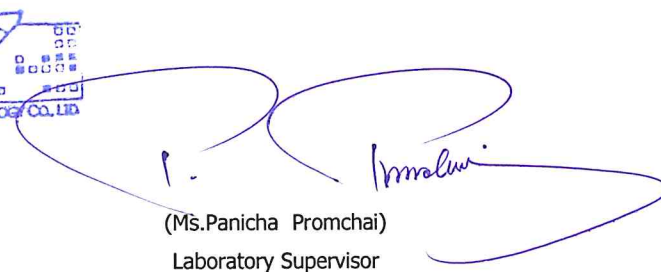
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Ambient Air Quality
Measured Point : ริมรั้วโรงงานทางด้านทิศใต้
GPS. Coordinate : UTM (WGS84) 47P 0733149 E, 1402371 N
Measured Date : October 18-21, 2024
Measured By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : CO NDIR Analyzer Thermo Model 48C Serial Number 0415406563

Quotation No. : MR2024-00106
Analysis No. : 2024-AF301-004
Report No. : 2024-RAAW258
Report Date : November 5, 2024

Interval Time	Result CO (ppm)						Standard ^{1/}
	Oct 18-19, 24		Oct 19-20, 24		Oct 20-21, 24		
	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	
12:00-13:00	0.6	-	0.6	0.6	0.5	0.6	
13:00-14:00	0.6	-	0.6	0.6	0.5	0.6	
14:00-15:00	0.5	-	0.5	0.6	0.5	0.6	
15:00-16:00	0.5	-	0.5	0.6	0.5	0.5	
16:00-17:00	0.4	-	0.5	0.5	0.5	0.5	
17:00-18:00	0.5	-	0.5	0.5	0.5	0.5	
18:00-19:00	0.4	-	0.6	0.5	0.5	0.5	
19:00-20:00	0.5	0.5	0.5	0.5	0.5	0.5	
20:00-21:00	0.5	0.5	0.5	0.5	0.5	0.5	
21:00-22:00	0.5	0.5	0.5	0.5	0.5	0.5	
22:00-23:00	0.6	0.5	0.6	0.5	0.5	0.5	
23:00-00:00	0.7	0.5	0.6	0.5	0.6	0.5	
00:00-01:00	0.6	0.5	0.5	0.5	0.5	0.5	
01:00-02:00	0.7	0.6	0.5	0.5	0.5	0.5	
02:00-03:00	0.6	0.6	0.7	0.6	0.5	0.5	
03:00-04:00	0.6	0.6	0.5	0.6	0.6	0.5	
04:00-05:00	0.7	0.6	0.5	0.6	0.5	0.5	
05:00-06:00	0.9	0.7	0.5	0.6	0.5	0.5	
06:00-07:00	0.6	0.7	0.5	0.5	0.5	0.5	
07:00-08:00	0.7	0.7	0.7	0.6	0.6	0.5	
08:00-09:00	0.6	0.7	0.5	0.6	0.6	0.5	
09:00-10:00	0.6	0.7	0.7	0.6	0.5	0.5	
10:00-11:00	0.5	0.6	0.5	0.6	0.6	0.6	
11:00-12:00	0.5	0.6	0.5	0.6	0.5	0.5	
24 Hours Average	0.6	-	0.5	-	0.5	-	-
1 Hour Maximum	0.9	-	0.7	-	0.6	-	30
8 Hours Maximum	-	0.7	-	0.6	-	0.6	9

Remark : ^{1/} Notification of National Environmental Board, No.10, B.E.2538 (1995), published in the Royal Government Gazette No.112 Part 42D dated May 25, B.E.2538 (1995), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).


 (Ms.Piyatida Pradangkho)
 Laboratory Reviewer


 (Ms.Panicha Promchai)
 Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : Irrigation Pond
GPS. Coordinate : UTM (WGS84) 47P 0733538 E, 1402605 N
Sampling Date : July 24, 2024
Sampling Time : 10:09
Sampling Method : Grab
Sampling By : Ms.Thunyaluck Saengyotha, Registration No.จ-099-จ-0041
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AD725-001
Received Date : July 26, 2024
Analytical Date : July 26-August 3, 2024
Report No. : 2024-RAAQ024
Report Date : August 6, 2024

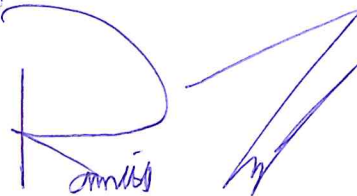
Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.2	5.5-9.0
Temperature	°C	Certified Thermometer	29.8	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	16	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	16	300
Total Suspended Solids	mg/L	Dried at 103-105°C	<5.0	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.9	5

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).




(Ms.Yuwadee Na Ranong)
Laboratory Reviewer No. จ-099-ค-0018



(Ms.Ramita Taengthai)
Laboratory Supervisor No. จ-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหน้าโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733150 E, 1402319 N
Sampling Date : July 24, 2024
Sampling Time : 10:20
Sampling Method : Grab
Sampling By : Ms.Thunyaluck Saengyotha, Registration No.จ-099-จ-0041
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AD725-003
Received Date : July 26, 2024
Analytical Date : July 26-August 3, 2024
Report No. : 2024-RAAR844
Report Date : September 4, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	7.7	5.5-9.0
Temperature	°C	Certified Thermometer	31.3	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	18	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	16	300
Total Suspended Solids	mg/L	Dried at 103-105°C	13	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	3.9	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	2.4	5

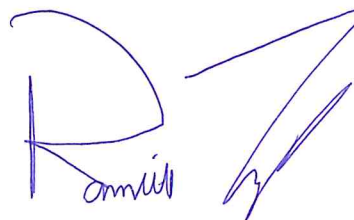
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).




(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. จ-099-ค-0018



(Ms.Ramita Taengthai)

Laboratory Supervisor No. จ-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหลังโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733739 E, 1402364 N
Sampling Date : July 24, 2024
Sampling Time : 10:17
Sampling Method : Grab
Sampling By : Ms.Thunyaluck Saengyotha, Registration No.ว-099-จ-0041
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AD725-002
Received Date : July 26, 2024
Analytical Date : July 26-August 3, 2024
Report No. : 2024-RAAQ025
Report Date : August 6, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.7	5.5-9.0
Temperature	°C	Certified Thermometer	29.3	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	18	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	15	300
Total Suspended Solids	mg/L	Dried at 103-105°C	9.4	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	3.7	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	<1.0	5


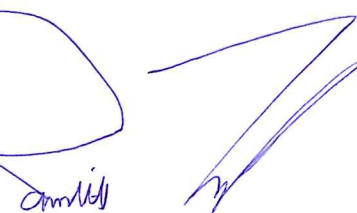
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).



(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. ว-099-ก-0018

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ก-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : Irrigation Pond
GPS. Coordinate : UTM (WGS84) 47P 0733538 E, 1402605 N
Sampling Date : August 21, 2024
Sampling Time : 09:12
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon, Registration No.จ-099-จ-0068
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory Registration No.จ-099
Physical Properties : Clear, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AE166-001
Received Date : August 23, 2024
Analytical Date : August 23-September 4, 2024
Report No. : 2024-RAAR758
Report Date : September 5, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	7.8	5.5-9.0
Temperature	°C	Certified Thermometer	30.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	12	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	11	300
Total Suspended Solids	mg/L	Dried at 103-105°C	8.7	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	3.0	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.6	5
Arsenic	mg/L	Digestion, Hydride Generation Atomic Absorption Spectrometry	<0.0002	0.25
Mercury	mg/L	Digestion, Cold-Vapor Atomic Absorption Spectrometry	0.0005	0.005
Cadmium	mg/L	In-house method: TM-LA-004	<0.01	0.03
Lead	mg/L	Digestion, Electrothermal Atomic Absorption Spectrometry	0.002	0.2

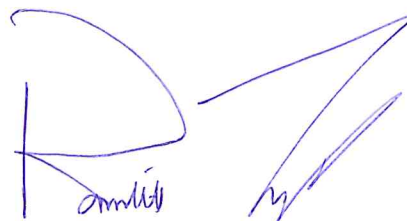
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).




(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. จ-099-จ-0018



(Ms.Ramita Taengthai)

Laboratory Supervisor No. จ-099-จ-0010

ANALYSIS REPORT


Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : Irrigation Pond
GPS. Coordinate : UTM (WGS84) 47P 0733538 E, 1402605 N
Sampling Date : August 21, 2024
Sampling Time : 09:12
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon
Analyzed By : Environment Research & Technology Co., Ltd.
Physical Properties : Clear, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AE166-001
Received Date : August 23, 2024
Analytical Date : August 23-September 4, 2024
Report No. : 2024-RAAR759
Report Date : September 5, 2024

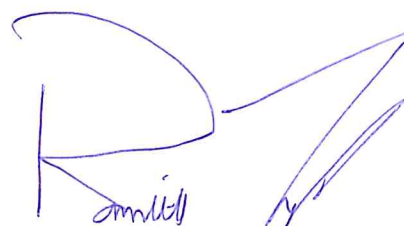
Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
Chromium	mg/L	Digestion, Inductively Coupled Plasma (ICP-OES)	<0.005	-

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).



(Ms.Yuwadee Na Ranong)
Laboratory Reviewer

(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

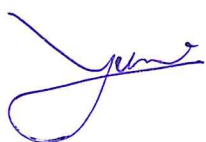
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหน้าโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733150 E, 1402319 N
Sampling Date : August 21, 2024
Sampling Time : 09:35
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon, Registration No.จ-099-จ-0068
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Clear, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AE166-002
Received Date : August 23, 2024
Analytical Date : August 23-September 4, 2024
Report No. : 2024-RAAR760
Report Date : September 5, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	6.8	5.5-9.0
Temperature	°C	Certified Thermometer	31.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	12	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	8.9	300
Total Suspended Solids	mg/L	Dried at 103-105°C	14	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	2.2	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.0	5
Arsenic	mg/L	Digestion, Hydride Generation Atomic Absorption Spectrometry	0.0030	0.25
Mercury	mg/L	Digestion, Cold-Vapor Atomic Absorption Spectrometry	<0.0005	0.005
Cadmium	mg/L	In-house method: TM-LA-004	<0.01	0.03
Lead	mg/L	Digestion, Electrothermal Atomic Absorption Spectrometry	0.004	0.2

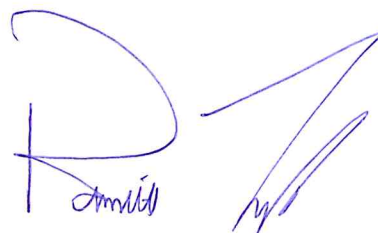
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).

(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. จ-099-ค-0018



(Ms.Ramita Taengthai)

Laboratory Supervisor No. จ-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหน้าโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733150 E, 1402319 N
Sampling Date : August 21, 2024
Sampling Time : 09:35
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon
Analyzed By : Environment Research & Technology Co., Ltd.
Physical Properties : Clear, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AE166-002
Received Date : August 23, 2024
Analytical Date : August 23-September 4, 2024
Report No. : 2024-RAAR763
Report Date : September 5, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
Chromium	mg/L	Digestion, Inductively Coupled Plasma (ICP-OES)	<0.005	-

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).



(Ms.Yuwadee Na Ranong)
Laboratory Reviewer

(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

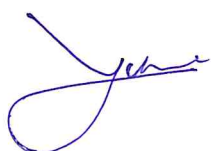
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหลังโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733739 E, 1402364 N
Sampling Date : August 21, 2024
Sampling Time : 09:24
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon, Registration No.ว-099-จ-0068
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AE166-003
Received Date : August 23, 2024
Analytical Date : August 23-September 4, 2024
Report No. : 2024-RAAR764
Report Date : September 5, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.3	5.5-9.0
Temperature	°C	Certified Thermometer	28.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	9.4	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	7.3	300
Total Suspended Solids	mg/L	Dried at 103-105°C	8.3	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	2.4	5
Arsenic	mg/L	Digestion, Hydride Generation Atomic Absorption Spectrometry	<0.0002	0.25
Mercury	mg/L	Digestion, Cold-Vapor Atomic Absorption Spectrometry	<0.0005	0.005
Cadmium	mg/L	In-house method: TM-LA-004	<0.01	0.03
Lead	mg/L	Digestion, Electrothermal Atomic Absorption Spectrometry	0.005	0.2

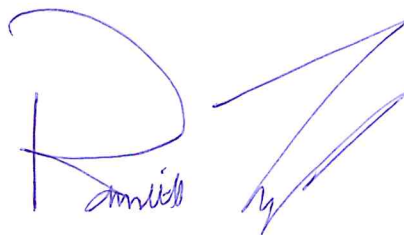
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).

(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. ว-099-ค-0018



(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-0010


ANALYSIS REPORT

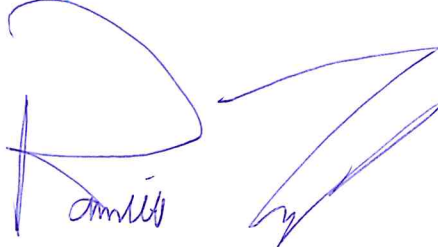
Customer Name	: Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)	Quotation No.	: MR2024-00106
Address	: 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150	Analysis No.	: 2024-AE166-003
Project Name	: โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง	Received Date	: August 23, 2024
Sampling Source	: Wastewater Sampling	Analytical Date	: August 23-September 4, 2024
Sampling Point	: รางระบายน้ำหลังโรงงาน	Report No.	: 2024-RAAR765
GPS. Coordinate	: UTM (WGS84) 47P 0733739 E, 1402364 N	Report Date	: September 5, 2024
Sampling Date	: August 21, 2024		
Sampling Time	: 09:24		
Sampling Method	: Grab		
Sampling By	: Mr.Natthapon Suttimon		
Analyzed By	: Environment Research & Technology Co., Ltd.		
Physical Properties	: Turbid, Light Yellow, Sediment, Odor		

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
Chromium	mg/L	Digestion, Inductively Coupled Plasma (ICP-OES)	0.006	-

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).


 (Ms.Yuwadee Na Ranong)
 Laboratory Reviewer


 (Ms.Ramita Taengthai)
 Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : Irrigation Pond
GPS. Coordinate : UTM (WGS84) 47P 0733539 E, 1402606 N
Sampling Date : September 16, 2024
Sampling Time : 13:34
Sampling Method : Grab
Sampling By : Mr.Akarawat Kochobog, Registration No.จ-099-จ-0015
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AE643-001
Received Date : September 17, 2024
Analytical Date : September 17-27, 2024
Report No. : 2024-RAAT519
Report Date : September 27, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.2	5.5-9.0
Temperature	°C	Certified Thermometer	31.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	12	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	12	300
Total Suspended Solids	mg/L	Dried at 103-105°C	13	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	3.4	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	3.1	5

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).




(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. จ-099-จ-0018



(Ms.Ramita Taengthai)

Laboratory Supervisor No. จ-099-จ-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหน้าโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733150 E, 1402315 N
Sampling Date : September 16, 2024
Sampling Time : 13:43
Sampling Method : Grab
Sampling By : Mr.Akarawat Kochobog, Registration No.จ-099-จ-0015
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AE643-002
Received Date : September 17, 2024
Analytical Date : September 17-27, 2024
Report No. : 2024-RAAT650
Report Date : September 27, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	7.7	5.5-9.0
Temperature	°C	Certified Thermometer	32.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	14	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	16	300
Total Suspended Solids	mg/L	Dried at 103-105°C	34	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	3.2	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	2.8	5

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).




(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. จ-099-ค-0018



(Ms.Ramita Taengthai)

Laboratory Supervisor No. จ-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหลังโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733739 E, 1402363 N
Sampling Date : September 16, 2024
Sampling Time : 13:24
Sampling Method : Grab
Sampling By : Mr.Akarawat Kochobog, Registration No.ว-099-จ-0015
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AE643-003
Received Date : September 17, 2024
Analytical Date : September 17-27, 2024
Report No. : 2024-RAAT651
Report Date : September 27, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.1	5.5-9.0
Temperature	°C	Certified Thermometer	29.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	17	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	18	300
Total Suspended Solids	mg/L	Dried at 103-105°C	7.2	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	2.0	5

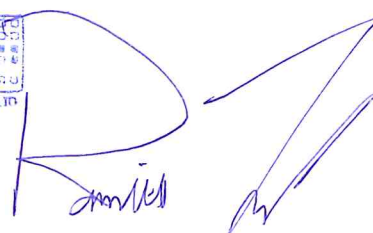
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).



(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. ว-099-ค-0018

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-0010

ANALYSIS REPORT

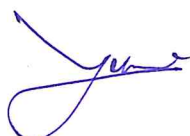
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : Irrigation Pond
GPS. Coordinate : UTM (WGS84) 47P 0733538 E, 1402605 N
Sampling Date : October 19, 2024
Sampling Time : 10:17
Sampling Method : Grab
Sampling By : Mr.Akarawat Kochobog, Registration No.จ-099-จ-0015
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AF245-001
Received Date : October 21, 2024
Analytical Date : October 21-30, 2024
Report No. : 2024-RAAW014
Report Date : November 5, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.5	5.5-9.0
Temperature	°C	Certified Thermometer	29.7	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	7.4	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	7.4	300
Total Suspended Solids	mg/L	Dried at 103-105°C	15	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	2.2	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	3.1	5
Arsenic	mg/L	Digestion, Hydride Generation Atomic Absorption Spectrometry	0.0002	0.25
Mercury	mg/L	Digestion, Cold-Vapor Atomic Absorption Spectrometry	<0.0005	0.005
Cadmium	mg/L	In-house method: TM-LA-004	<0.01	0.03
Lead	mg/L	Digestion, Electrothermal Atomic Absorption Spectrometry	0.020	0.2

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).

(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. จ-099-ค-0018



(Ms.Ramita Taengthai)

Laboratory Supervisor No. จ-099-ค-0010

ANALYSIS REPORT

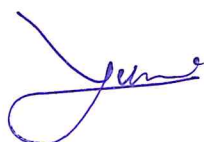
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : Irrigation Pond
GPS. Coordinate : UTM (WGS84) 47P 0733538 E, 1402605 N
Sampling Date : October 19, 2024
Sampling Time : 10:17
Sampling Method : Grab
Sampling By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AF245-001
Received Date : October 21, 2024
Analytical Date : October 21-29, 2024
Report No. : 2024-RAAW015
Report Date : November 5, 2024

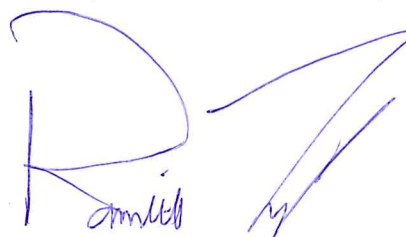
Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
Chromium	mg/L	Digestion, Inductively Coupled Plasma (ICP-OES)	<0.005	-

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).

(Ms.Yuwadee Na Ranong)
Laboratory Reviewer



(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหน้าโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733150 E, 1402319 N
Sampling Date : October 19, 2024
Sampling Time : 10:33
Sampling Method : Grab
Sampling By : Mr.Akarawat Kochobog, Registration No.จ-099-จ-0015
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AF245-002
Received Date : October 21, 2024
Analytical Date : October 21-30, 2024
Report No. : 2024-RAAW016
Report Date : November 5, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	7.6	5.5-9.0
Temperature	°C	Certified Thermometer	30.7	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	13	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	14	300
Total Suspended Solids	mg/L	Dried at 103-105°C	24	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.5	5
Arsenic	mg/L	Digestion, Hydride Generation Atomic Absorption Spectrometry	0.0060	0.25
Mercury	mg/L	Digestion, Cold-Vapor Atomic Absorption Spectrometry	0.0005	0.005
Cadmium	mg/L	In-house method: TM-LA-004	<0.01	0.03
Lead	mg/L	Digestion, Electrothermal Atomic Absorption Spectrometry	<0.001	0.2

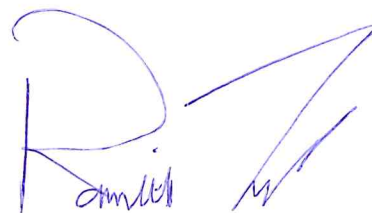
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).




(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. จ-099-ค-0018



(Ms.Ramita Taengthai)

Laboratory Supervisor No. จ-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหน้าโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733150 E, 1402319 N
Sampling Date : October 19, 2024
Sampling Time : 10:33
Sampling Method : Grab
Sampling By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Physical Properties : Turbid, Light Yellow, Sediment, Odor

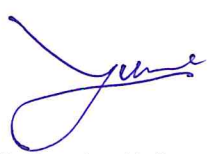
Quotation No. : MR2024-00106
Analysis No. : 2024-AF245-002
Received Date : October 21, 2024
Analytical Date : October 21-29, 2024
Report No. : 2024-RAAW022
Report Date : November 5, 2024

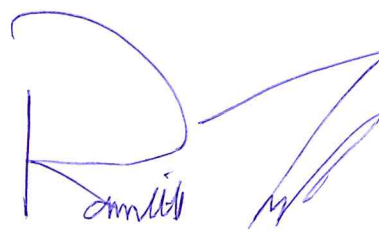
Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
Chromium	mg/L	Digestion, Inductively Coupled Plasma (ICP-OES)	<0.005	-

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).




 (Ms.Yuwadee Na Ranong)
 Laboratory Reviewer


 (Ms.Ramita Taengthai)
 Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหลังโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733739 E, 1402364 N
Sampling Date : October 19, 2024
Sampling Time : 10:07
Sampling Method : Grab
Sampling By : Mr.Akarawat Kochobog, Registration No.จ-099-จ-0015
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor
Quotation No. : MR2024-00106
Analysis No. : 2024-AF245-003
Received Date : October 21, 2024
Analytical Date : October 21-30, 2024
Report No. : 2024-RAAW023
Report Date : November 5, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	9.0	5.5-9.0
Temperature	°C	Certified Thermometer	26.8	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	11	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	11	300
Total Suspended Solids	mg/L	Dried at 103-105°C	<5.0	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	4.5	5
Arsenic	mg/L	Digestion, Hydride Generation Atomic Absorption Spectrometry	0.0003	0.25
Mercury	mg/L	Digestion, Cold-Vapor Atomic Absorption Spectrometry	<0.0005	0.005
Cadmium	mg/L	In-house method: TM-LA-004	<0.01	0.03
Lead	mg/L	Digestion, Electrothermal Atomic Absorption Spectrometry	0.007	0.2

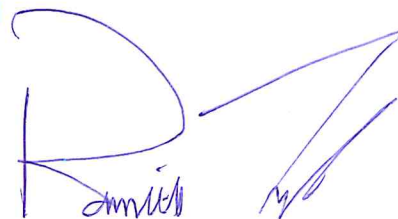
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).




(Ms. Yuwadee Na Ranong)

Laboratory Reviewer No. จ-099-ค-0018



(Ms. Ramita Taengthai)

Laboratory Supervisor No. จ-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหลังโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733739 E, 1402364 N
Sampling Date : October 19, 2024
Sampling Time : 10:07
Sampling Method : Grab
Sampling By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AF245-003
Received Date : October 21, 2024
Analytical Date : October 21-29, 2024
Report No. : 2024-RAAW024
Report Date : November 5, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
Chromium	mg/L	Digestion, Inductively Coupled Plasma (ICP-OES)	<0.005	-

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).




(Ms.Yuwadee Na Ranong)
Laboratory Reviewer



(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : Irrigation Pond
GPS. Coordinate : UTM (WGS84) 47P 0733538 E, 1402605 N
Sampling Date : November 19, 2024
Sampling Time : 08:49
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon, Registration No.ว-099-จ-0068
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory Registration No.ว-099
Physical Properties : Clear, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AF841-001
Received Date : November 20, 2024
Analytical Date : November 20-26, 2024
Report No. : 2024-RAAY119
Report Date : November 26, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.1	5.5-9.0
Temperature	°C	Certified Thermometer	30.1	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	13	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	11	300
Total Suspended Solids	mg/L	Dried at 103-105°C	7.7	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	2.3	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	<1.0	5

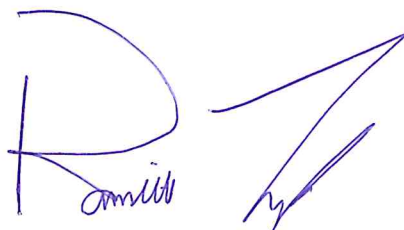
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).




(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. ว-099-ค-0018



(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-0010

ANALYSIS REPORT

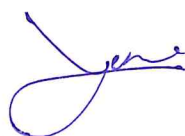
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหน้าโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733150 E, 1402319 N
Sampling Date : November 19, 2024
Sampling Time : 09:08
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon, Registration No.ว-099-จ-0068
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AF841-002
Received Date : November 20, 2024
Analytical Date : November 20-26, 2024
Report No. : 2024-RAAY120
Report Date : November 26, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	7.2	5.5-9.0
Temperature	°C	Certified Thermometer	29.6	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	16	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	15	300
Total Suspended Solids	mg/L	Dried at 103-105°C	17	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	<1.0	5

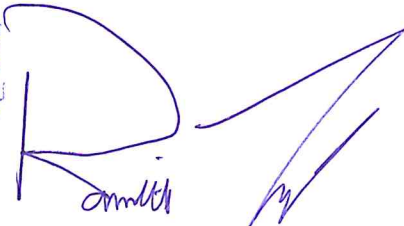
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).



(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. ว-099-ค-0018

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-0010

ANALYSIS REPORT


Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหลังโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733739 E, 1402364 N
Sampling Date : November 19, 2024
Sampling Time : 09:00
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon, Registration No.ว-099-จ-0068
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Clear, Light Yellow, Sediment, Odor

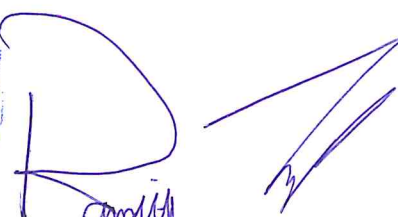
Quotation No. : MR2024-00106
Analysis No. : 2024-AF841-003
Received Date : November 20, 2024
Analytical Date : November 20-26, 2024
Report No. : 2024-RAAY121
Report Date : November 26, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.1	5.5-9.0
Temperature	°C	Certified Thermometer	29.1	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	13	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	11	300
Total Suspended Solids	mg/L	Dried at 103-105°C	9.2	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	<1.0	5

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).


(Ms.Yuwadee Na Ranong)
Laboratory Reviewer No. ว-099-ก-0018


(Ms.Ramita Taengthai)
Laboratory Supervisor No. ว-099-ก-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : Irrigation Pond
GPS. Coordinate : UTM (WGS84) 47P 0733538 E, 1402605 N
Sampling Date : December 14, 2024
Sampling Time : 08:56
Sampling Method : Grab
Sampling By : Ms.Budsakorn Somrak, Registration No.ว-099-จ-0039
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Clear, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AG335-001
Received Date : December 16, 2024
Analytical Date : December 16-23, 2024
Report No. : 2024-RABA677
Report Date : December 24, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.3	5.5-9.0
Temperature	°C	Certified Thermometer	27.7	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	11	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	14	300
Total Suspended Solids	mg/L	Dried at 103-105°C	9.2	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	2.3	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.6	5

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).

(Ms.Yuwadee Na Ranong)
Laboratory Reviewer No. ว-099-ค-0018

(Ms.Ramita Taengthai)
Laboratory Supervisor No. ว-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหน้าโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733150 E, 1402319 N
Sampling Date : December 14, 2024
Sampling Time : 09:09
Sampling Method : Grab
Sampling By : Ms.Budsakorn Somrak, Registration No.ว-099-จ-0039
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AG335-002
Received Date : December 16, 2024
Analytical Date : December 16-23, 2024
Report No. : 2024-RABA678
Report Date : December 24, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	7.6	5.5-9.0
Temperature	°C	Certified Thermometer	28.2	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	11	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	11	300
Total Suspended Solids	mg/L	Dried at 103-105°C	22	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.2	5

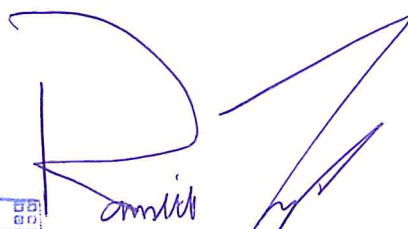
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).



(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. ว-099-ค-0018

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหลังโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733739 E, 1402364 N
Sampling Date : December 14, 2024
Sampling Time : 09:02
Sampling Method : Grab
Sampling By : Ms.Budsakorn Somrak, Registration No.ว-099-จ-0039
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Clear, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00106
Analysis No. : 2024-AG335-003
Received Date : December 16, 2024
Analytical Date : December 16-23, 2024
Report No. : 2024-RABA820
Report Date : December 24, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.6	5.5-9.0
Temperature	°C	Certified Thermometer	27.4	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	6.9	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	6.1	300
Total Suspended Solids	mg/L	Dried at 103-105°C	<5.0	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	<1.0	5

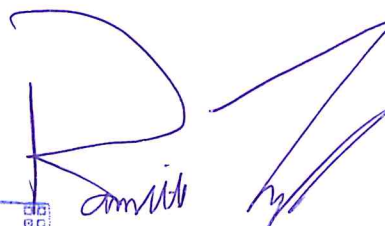
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 24th Edition, 2023.

^{2'} Notification of the Ministry of Industry, B.E.2560 (2017), issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette No.134 Part 153D dated June 7, B.E.2560 (2017).



(Ms.Yuwadee Na Ranong)

Laboratory Reviewer No. ว-099-ค-0018

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Solid Waste Sampling
Sampling Point : ฝุ่นอัดเม็ด (Fume Plant) (ฝุ่นจากเตาหลอมเหล็ก)
GPS. Coordinate : UTM (WGS84) 47P 0733527 E, 1402519 N
Sampling Date : October 19, 2024
Sampling Time : 10:25
Sampling Method : Grab
Sampling By : Mr.Akarawat Kochobog, Registration No.ว-099-จ-0015
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory Registration No.ว-099
Physical Properties : -
Quotation No. : MR2024-00106
Analysis No. : 2024-AF245-004
Received Date : October 21, 2024
Analytical Date : October 21-November 7, 2024
Report No. : 2024-RAAW025
Report Date : November 11, 2024

Parameter	Unit	Method of Analysis	Result	Standard ^{1'} (TTLIC)
Arsenic	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	14	500
Cadmium	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	76	100
Chromium	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	2,299	2,500
Lead	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	8,142	1,000
Mercury	mg/kg	Digestion, Cold-Vapor Atomic Absorption Spectrometry	1.5	20

Remark : ^{1'} Notification of the Ministry of Industry, B.E.2566 (2023), dated March 16, B.E.2566 (2023) issued under Factory Act B.E.2562 (2022) and B.E.2535 (1992), published in the Royal Government Gazette No.140 Part 126D dated May 31, B.E.2566 (2023).



(Signature)
(Ms.Raiwin Posit)
Laboratory Reviewer No. ว-099-ค-0011

(Signature)
(Ms.Ramita Taengthai)
Laboratory Supervisor No. ว-099-ค-0010

ANALYSIS REPORT

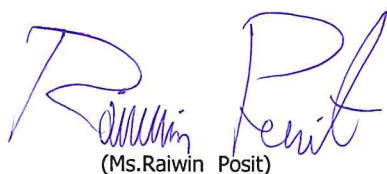
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Solid Waste Sampling
Sampling Point : ภาวตะกอนจากระบบบำบัดน้ำเสีย (Sludge Drying Bed)
GPS. Coordinate : UTM (WGS84) 47P 0733518 E, 1402578 N
Sampling Date : October 19, 2024
Sampling Time : 09:47
Sampling Method : Grab
Sampling By : Mr.Akarawat Kochobog, Registration No.ว-099-จ-0015
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : -

Quotation No. : MR2024-00106
Analysis No. : 2024-AF245-007
Received Date : October 21, 2024
Analytical Date : October 21-November 7, 2024
Report No. : 2024-RAAW028
Report Date : November 11, 2024

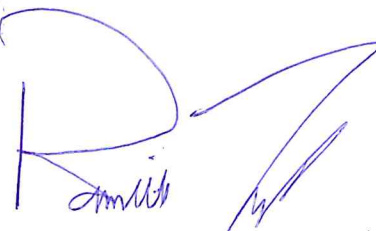
Parameter	Unit	Method of Analysis	Result	Standard ^{1'} (TTL)
Arsenic	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	28	500
Cadmium	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	13	100
Chromium	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	808	2,500
Lead	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	25	1,000
Mercury	mg/kg	Digestion, Cold-Vapor Atomic Absorption Spectrometry	<0.1	20

Remark : ^{1'} Notification of the Ministry of Industry, B.E.2566 (2023), dated March 16, B.E.2566 (2023) issued under Factory Act B.E.2562 (2022) and B.E.2535 (1992), published in the Royal Government Gazette No.140 Part 126D dated May 31, B.E.2566 (2023).




(Ms. Raiwin Posit)

Laboratory Reviewer No. ว-099-ค-0011


(Ms. Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-0010

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Solid Waste Sampling
Sampling Point : ภาวตะกอนจากระบบบำบัดน้ำเสีย (Sludge Drying Bed)
GPS. Coordinate : UTM (WGS84) 47P 0733518 E, 1402578 N
Sampling Date : October 19, 2024
Sampling Time : 09:47
Sampling Method : Grab
Sampling By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Physical Properties : -

Quotation No. : MR2024-00106
Analysis No. : 2024-AF245-007
Received Date : October 21, 2024
Analytical Date : October 21-31, 2024
Report No. : 2024-RAAX258
Report Date : November 11, 2024

Parameter	Unit	Method of Analysis	Result	Standard ^{1'} (TTLIC)
Oil & Grease ^{2'}	%	Soxhlet Extraction	2.88	-

Remark : ^{1'} Notification of the Ministry of Industry, B.E.2566 (2023), dated March 16, B.E.2566 (2023) issued under Factory Act B.E.2562 (2022) and B.E.2535 (1992), published in the Royal Government Gazette No.140 Part 126D dated May 31, B.E.2566 (2023).

^{2'} Analyzed by Subcontractor Laboratory.




(Ms.Raiwin Posit)
Laboratory Reviewer



(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Work Place Air Quality
Sampling Date : October 19, 2024
Sampling Time : 10:52-12:47
Sampling Method : NIOSH
Sampling By : Mr.Chatchai Yowapuy
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : MR2024-00106
Analysis No. : 2024-AF341
Received Date : October 25, 2024
Analytical Date : October 25-30, 2024
Report No. : 2024-RAAW040
Report Date : October 31, 2024

Item	Sampling Area	Parameter	Method of Analysis	Unit	Result	Standard	
						Thai ^{1'}	ACGIH ^{2'}
1	หน้าเตาหลอมเหล็ก EAF	Inhalable Dust	Gravimetric	mg/m ³	2.0	-	10
		Respirable Dust	Gravimetric	mg/m ³	0.79	-	3
2	จุดปฏิบัติงาน CCM	Inhalable Dust	Gravimetric	mg/m ³	2.0	-	10
		Respirable Dust	Gravimetric	mg/m ³	0.52	-	3
3	ลานแท่นรีด	Inhalable Dust	Gravimetric	mg/m ³	1.1	-	10
		Respirable Dust	Gravimetric	mg/m ³	0.17	-	3
4	ลานนับเหล็กของผู้รับเหมา	Inhalable Dust	Gravimetric	mg/m ³	0.81	-	10
		Respirable Dust	Gravimetric	mg/m ³	0.38	-	3

Remark : ^{1'} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2556 (2013), published in the Royal Government Gazette Volume 134 Special Part 198D dated August 3, B.E.2560 (2017).

^{2'} ACGIH = American Conference of Governmental Industrial Hygienists, 2021.



Nct S

(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer

Ramita

(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name	:Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address	:1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name	:โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source	:Work Place Air Temperature
Measured Date	:October 19, 2024
Measured By	:Mr. Wacharapong Phunkhetkit
Analyzed By	:Environment Research & Technology Co., Ltd.
Measured Instrument	:Heat Stress Monitor/Electronic Quest Technologies Model QT-34 Serial Number TEH040040

Quotation No.	: MR2024-00106
Analysis No.	: 2024-AF343-001
Report No.	: 2024-RAAW645
Report Date	: November 5, 2024

Measured Location	Employee Name	Duration	Measurement Temperature, °C					Job Description/ Activities	Work Load, WL			Standard ^{2/}
			T _{nwb}	T _{db}	T _{et}	WBGT (Avg.)	WBGT ^{1/} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	Workload Rate	
จุดผลิตเหล็กเส้นในรูป (Indoor)	คุณสมโชค เหลืองสุวรรณ	10:08-12:08	26.8	30.2	32.0	28.4	28.4	ควบคุมเครื่องจักร				34.0
								- ยืน ทำงานด้วยแขนทั้ง 2 ข้าง (เมก)	126.0			
								การเผาลายปูนฐานของรางกาย	60.0			

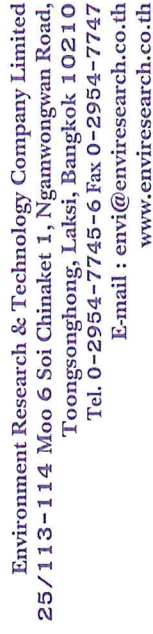
Remark: T_{wet} = Nature Wet Bulb Temperature. T_{db} = Dry Bulb Temperature. T_{gt} = Globe Temperature, WBGT = Wet Bulb Globe Temperature Index.

1' Calculate by $((WBG_1 \times Time_1) + (WBG_2 \times Time_2) + \dots + (WBG_n \times Time_n)) / (Time_1 + Time_2 + \dots + Time_n)$

2' Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).

(Ms.Thidarat Pukkha)
Laboratory Reviewer

(Ms.Thanida Bunrungrueang)
Laboratory Supervisor



Customer Name	:Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address	:1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name	:โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source	:Work Place Air Temperature
Measured Date	:October 19, 2024
Measured By	:Mr.Wadcharapong Phunkhetkit
Analyzed By	:Environment Research & Technology Co., Ltd.
Measured Instrument	:Heat Stress Monitor/Electronic Quest Technologies Model QT-32 Serial Number: TPN07007

Remarks: T_{nat} = Nature Wet Bulb Temperature T_{db} = Dry Bulb Temperature T_{g} = Globe Temperature. WGBT = Wet Bulb Globe Temperature Index.

1st Calculate by $((WBGT_i \times \text{Time}) + (WBGT_1 \times \text{Time}) + \dots + (WBGT_n \times \text{Time})) / (\text{Time}_1 + \text{Time}_2 + \dots + \text{Time}_n)$

Measured Location	Employee Name	Duration	Measurement Temperature, °C					Job Description/ Activities	Work Load, WL		Standard ²
			T _{NWB}	T _{DB}	T _{et}	WBGT	WBGT ¹ (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	
- ห้องควบคุม (Indoor) - หน้าตาหลอมเหล็ก EAF (Indoor)	คุณประจวบ แสนจันทร์	10:25-11:25	18.3	24.0	24.4	20.1	25.4	ควบคุมเครื่องจักร			34.0
		11:25-12:25	28.5	33.5	35.6	30.6		- นั่ง ทำงานด้วยมือ (เบา) เดินเร็วเฟล้ง	21.0		
		-	-	-	-	-		- ยืน ทำงานด้วยแขนทั้ง 2 ข้าง (หนัก) การเผาลายพื้นฐานของร่างกาย	93.0	60.0	

(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

Page 1/1

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Work Place Air Temperature
Measured Date : October 19, 2024
Measured By : Mr. Wadcharapong Phunkhetkit
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Heat Stress Monitor/Electronic Quest Technologies Model QT-32 Serial Number OTP0120002

Quotation No. : MR2024-00106
Analysis No. : 2024-AF343-003
Report No. : 2024-RAAW647
Report Date : November 5, 2024

Measured Location	Employee Name	Duration	Measurement Temperature; °C				Job Description/ Activities	Work Load, WL		Standard ^{2'}
			T _{nwb}	T _{db}	T _{gr}	WBGT ^{1'} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	
- จุดปฏิบัติงาน CCM (Indoor) - ห้องพักพนักงาน CCM (Indoor)	คุณวดีไพร สอนโอบ	11:49-13:19	27.5	34.6	35.4	29.9	สังเกตการทำงานของเครื่องจักร - นั่ง	9.0	120.0	Light
		13:19-13:49	20.6	24.9	25.9	22.2	เปลี่ยนเหล็ก - ยืน ทำงานด้วยแขนทั้ง 2 ข้าง (หนัก)	46.5		
		-	-	-	-	-	- นั่งพัก	4.5		
		-	-	-	-	-	การดูแลรักษาพื้นฐานของร่างกาย	60.0		

Remark : T_{nwb} = Nature Wet Bulb Temperature, T_{db} = Dry Bulb Temperature, T_{gr} = Globe Temperature, WBGT = Wet Bulb Globe Temperature Index.

^{1'} Calculate by $((WBGT_1 \times Time_1) + (WBGT_2 \times Time_2) + \dots + (WBGT_n \times Time_n)) / (Time_1 + Time_2 + \dots + Time_n)$
^{2'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).



(Signature)

(Ms.Thidarat Pukkha)
Laboratory Reviewer

(Signature)

(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name

:Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)

Address

:1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150

Project Name

:โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง

Measured Source

:Work Place Air Temperature

Measured Date

:October 19, 2024

Measured By

:Mr.Wadcharapong Phunkhetkit

Analyzed By

:Environment Research & Technology Co., Ltd.

Measured Instrument

:Heat Stress Monitor/Electronic Quest Technologies Model QT-32 Serial Number TPG030012

Quotation No.

: MR2024-00106

Analysis No.

: 2024-AF343-004

Report No.

: 2024-RAAW648

Report Date

: November 5, 2024

Measured Location	Employee Name	Duration	Measurement Temperature; °C				Job Description/ Activities	Work Load, WL			Standard ^{2'}
			Tnwb	Tdb	Tgt	WBGT ^{1'} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	Workload Rate	
Pendulum Shear (Indoor)	คุณกฤษฎา การดี	11-04-13:04	28.4	34.9	35.5	30.5	ควบคุมเครื่องตัดเหล็ก - ยืน ทำงานด้วยแขนทั้ง 2 ข้าง (เบา) การเคลื่อนย้ายพื้นฐานของร่างกาย	126.0	186.0	Light	34.0

Remark : Tnwb = Nature Wet Bulb Temperature, Tdb = Dry Bulb Temperature, Tgt = Globe Temperature, WBGT = Wet Bulb Globe Temperature Index.

1' Calculate by $((WBGT_1 \times Time_1) + (WBGT_2 \times Time_2) + \dots + (WBGT_n \times Time_n)) / (Time_1 + Time_2 + \dots + Time_n)$

2' Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).



(Ms.Thidarat Pukkha)

Laboratory Reviewer

(Ms.Thanida Bunnrungrueang)

Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Work Place Air Temperature
Measured Date : October 19, 2024
Measured By : Mr. Wadcharapong Phunkhetkit
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Heat Stress Monitor/Electronic Quest Technologies Model QT-32 Serial Number TPI050015

Quotation No. : MR2024-00106
Analysis No. : 2024-AF343-005
Report No. : 2024-RAAW649
Report Date : November 5, 2024

Measured Location	Employee Name	Duration	Measurement Temperature; °C				Job Description/ Activities	Work Load, WL			Standard ^{2'}
			T _{nwb}	T _{db}	T _g	WBGT ^{1'} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	Workload Rate	
ลานแท่นรีด (Indoor)	Vansy Sem	11:10-13:10	27.8	32.8	34.5	29.8	ซ่อมเครื่องจักร - ยืน ทำงานด้วยร่างกายทุกส่วน (นวด) ตรวจสอบการทำงานของเครื่องจักร - เดินบนพื้นราบ การเคลื่อนย้ายพื้นฐานของร่างกาย	123.0	243.0	Moderate	32.0

Remark : T_{nwb} = Nature Wet Bulb Temperature, T_{db} = Dry Bulb Temperature, T_g = Globe Temperature, WBGT = Wet Bulb Globe Temperature Index.

^{1'} Calculate by $((WBGT_1 \times Time_1) + ((WBGT_2 \times Time_2) + \dots + (WBGT_n \times Time_n)) / (Time_1 + Time_2 + \dots + Time_n))$
^{2'} Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).



(Signature)

(Ms.Thidarat Pukkha)
Laboratory Reviewer

(Signature)

(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name	:Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address	:1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name	:โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source	:Work Place Air Temperature
Measured Date	:October 19, 2024
Measured By	:Mr.Wadcharapong Phunkhetkit
Analyzed By	:Environment Research & Technology Co., Ltd.
Measured Instrument	:Heat Stress Monitor/Electronic Quest Technologies Model QT-32 Serial Number TPI030003

Quotation No.	: MR2024-00106
Analysis No.	: 2024-AF343-006
Report No.	: 2024-RAAW650
Report Date	: November 5, 2024

Measured Location	Employee Name	Duration	Measurement Temperature, °C					Job Description/ Activities	Work Load, WL		Standard ²⁷	
			T _{NWB}	T _{DB}	T _{GT}	WBGT	WBGT ¹ (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)		Workload Rate
ลานนันทนาการของผู้บริหาร (Indoor)	คุณวิวัฒน์ แก้วกิ่ง	11:18-13:18	26.9	32.2	32.3	28.5	28.5	นั่งหลัก - นั่ง ทำงานด้วยแขนทั้ง 2 ข้าง (เบร) - การเผาผลาญพื้นฐานของร่างกาย	108.0 60.0	168.0	Light	34.0

Remark: T_{WB8} = Nature Wet Bulb Temperature, T_{DB} = Dry Bulb Temperature, T_{GT} = Globe Temperature, $WBGT$ = Wet Bulb Globe Temperature Index.

1' Calculate by $((WBG1 \times Time1) + (WBG2 \times Time2) + \dots + (WBGn \times Timen)) / (Time1 + Time2 + \dots + Timen)$

2' Ministerial Regulation of the Ministry of Labour, B.E.2559 (2016), published in the Royal Government Gazette No.133, Part 91A dated October 17, B.E.2559 (2016).



(Ms.Thidarat Pukkha)
Laboratory Reviewer

(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name	:Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address	:1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name	:โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source	:Personal Noise Dose
Measured By	:Ms.Thunyaluck Saengyotha
Analyzed By	:Environment Research & Technology Co., Ltd.

Quotation No.	: MR2024-00106
Analysis No.	: 2024-AD741
Report No.	: 2024-RAAP467
Report Date	: August 2, 2024

Item	Measured Location	Employee Name	Working Time		Measured Date	Measured Time		Serial Number of Noise Dosimeter	Summary of Measurement Results ¹⁷	
			Interval Time	Period (Hr)		Interval Time	Period (Hr)		Project Dose (%)	Time Weighted Average 8 hrs (dB(A))
1	หน้าศาลาพลมเหล็ก EAF	คุณวิศก คำแดง	08:00 – 16:00	8.00	Jul 24, 24	09:06 – 16:28	7.22	180200305	183.90*	87.6*
2	ลานแพนซิด	คุณอาทิตย์ วงศ์หิน	08:00 – 16:00	8.00	Jul 24, 24	09:47 – 16:59	7.12	180200304	1.50	66.7
3	Pendulum Shear	คุณเสด็จะ โจ้มนั่ง	08:00 – 16:00	8.00	Jul 24, 24	09:37 – 16:47	7.10	180200315	1.70	67.3
4	ลานบ้นเหล็กของหัวเหมา	คุณวัตุฒ แก้วกิ่ง	08:00 – 20:00	12.00	Jul 24, 24	09:53 – 16:58	7.05	180200301	73.40	83.7
5	จุดผลิตเหล็กเส้นขี้นรูป	คุณสนเียด เกสียงสุวรรณ	08:00 – 16:00	8.00	Jul 24, 24	09:58 – 17:01	7.03	190800173	223.40*	88.5*
Standard²⁷									100	85

Remark: 1' Using 3 dB Energy Exchange Rate, Slow Response, 85 dB Criteria Level, 80 dB Threshold Level.

2/ The announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2559 (2016), published in the Royal Government Gazette Volume 135 Special Part 19D dated January 26, B.E.2561 (2018) and published in the Royal Government Gazette Volume 135 Special Part 57D dated March 12, B.E.2561 (2018).

* Not within Standard.

(Ms.Thidarat Pukha)
Laboratory Reviewer

(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name

Address

Project Name

Measured Source

Measured By

Analyzed By

:Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)

:1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150

:โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง

:Personal Noise Dose

:Ms.Budsakorn Somrak

:Environment Research & Technology Co., Ltd.

Quotation No.

Analysis No.

Report No.

Report Date

:MR2024-01444

:2024-AE207

:2024-RAAR596

:September 2, 2024

Item	Measured Location	Employee Name	Working Time		Measured Date	Measured Time		Serial Number of Noise Dosimeter	Summary of Measurement Results ^{1/}	
			Interval Time	Period (Hr)		Interval Time	Period (Hr)		Project Dose (%)	Time Weighted Average 8 hrs (dB(A))
1	จุดปฏิบัติงาน CCM	คุณวุฒิไกร สอนน้อย	08:00 - 00:00	16.00	Aug 21, 24	08:47 - 16:02	7.15	190600236	58.70	82.7
2	เตาหลอมเหล็ก LF	คุณเอชชาติ จันทะสโร	08:00 - 00:00	16.00	Aug 21, 24	08:56 - 16:08	7.12	190600233	0.13	56.0
Standard ^{2/}									100	85

Remark : ^{1/} Using 3 dB Energy Exchange Rate, Slow Response, 85 dB Criteria Level, 80 dB Threshold Level.
^{2/} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2559 (2016), published in the Royal Government Gazette Volume 135 Special Part 19D dated January 26, B.E.2561 (2018) and published in the Royal Government Gazette Volume 135 Special Part 57D dated March 12, B.E.2561 (2018).

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ENVIRONMENT RESEARCH & TECHNOLOGY CO., LTD.

(Ms.Thidarat Pukkha)

Laboratory Reviewer

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ENVIRONMENT RESEARCH & TECHNOLOGY CO., LTD.

(Ms.Thanida Bunrungrueang)

Laboratory Supervisor

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F-RP-016 Rev. 06, January 18, 2021

ANALYSIS REPORT

Customer Name

:Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)

Address

:1 Map Ta Phut Industrial Estate, I-7 Road, Mueang Rayong, Rayong 21150

Project Name

:โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง

Measured Source

:Personal Noise Dose

Measured By

:Mr.Wadcharapong Phunkhetkit

Analyzed By

:Environment Research & Technology Co., Ltd.

Quotation No.

:MR2024-00106

Analysis No.

:2024-AF343

Report No.

:2024-RAAW651

Report Date

:November 5, 2024

Item	Measured Location	Employee Name	Working Time		Measured Date	Measured Time		Serial Number of Noise Dosimeter	Summary of Measurement Results ^{1/}	
			Interval Time	Period (Hr)		Interval Time	Period (Hr)		Project Dose (%)	Time Weighted Average 8 hrs (dB(A))
1	จุดผลิตเหล็กเส้นขึ้นรูป	คุณสมโชค เหลืองสุวรรณ	08:00 – 16:00	8.00	Oct 19, 24	08:36 – 16:12	7.36	190800266	232.80*	88.7*
2	หน้าเตาหลอมเหล็ก EAF	คุณธีรพล สอนาสาสตร์	08:00 – 16:00	8.00	Oct 19, 24	08:50 – 16:24	7.34	190600222	98.10	84.9
3	เตาหลอมเหล็ก LF	คุณอภิชาติ จันทร์สี	08:00 – 16:00	8.00	Oct 19, 24	08:58 – 16:28	7.30	190600235	570.50*	92.5*
4	จุดปฏิบัติงาน CCM	คุณวุฒิไกร สอนน้อย	08:00 – 16:00	8.00	Oct 19, 24	09:04 – 16:46	7.42	17862	68.58	83.4
5	Pendulum Shear	คุณธีระ ใจมั่นคง	08:00 – 16:00	8.00	Oct 19, 24	09:15 – 16:24	7.09	17861	12.64	76.0
6	ลานแท่นรีด	คุณภาณุวัฒน์ กันยาชาติ	08:00 – 16:00	8.00	Oct 19, 24	09:16 – 16:24	7.08	180200315	1.10	65.3
7	ลานนับเหล็กของผู้รับเหมา	คุณบัวตม แก้วกั้ง	08:00 – 16:00	8.00	Oct 19, 24	09:27 – 16:38	7.11	190800173	85.50	84.3
Standard ^{2/}									100	85

Remark : ^{1/} Using 3 dB Energy Exchange Rate, Slow Response, 85 dB Criteria Level, 80 dB Threshold Level.

^{2/} The Announcement of the Department of Labour Protection and Welfare, issued under the Labour Ministerial Regulation, B.E.2559 (2016), published in the Royal Government Gazette Volume 135 Special Part 19D dated January 26, B.E.2561 (2018) and published in the Royal Government Gazette Volume 135 Special Part 57D dated March 12, B.E.2561 (2018).

* Not within Standard.



(Ms.Thidarat Pukkha)
Laboratory Reviewer

(Ms.Thanida Bunrungrueang)
Laboratory Supervisor



ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Work Place Noise
Measured Date : July 24, 2024
Measured By : Ms.Thunyaluck Saengyotha
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222117


Quotation No. : MR2024-00106
Analysis No. : 2024-AD741-008
Report No. : 2024-RAAP463
Report Date : August 2, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
เดาหลอมเหล็ก EAF ห้องควบคุม (จุดเอโคก ค่าเฉลี่ย)	09:05 - 10:05	72.3	95.1	-
	10:05 - 11:05	70.6	81.1	-
	11:05 - 12:05	71.4	82.8	-
	12:05 - 13:05	71.1	82.8	-
	13:05 - 14:05	71.9	84.5	-
	14:05 - 15:05	80.4	111.9	-
	15:05 - 16:05	71.6	84.9	-
	16:05 - 17:05	70.9	85.2	-
	Equivalent Level 8 hrs (Leq 8 hrs)	74.1		90
	Maximum Level (Lmax)	111.9		140

Remark : ^{1'} Notification of the Ministry of Industry regarding Working Environment, Occupation Health and Safety Measurements issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette, Vol.120, Part 138D dated December 3, B.E.2546 (2003).

(Ms.Thidarat Pukkha)
Laboratory Reviewer



(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Work Place Noise
Measured Date : July 24, 2024
Measured By : Ms.Thunyaluck Saengyotha
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222124

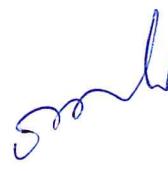
Quotation No. : MR2024-00106
Analysis No. : 2024-AD741-009
Report No. : 2024-RAAP464
Report Date : August 2, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
เครื่องหล่อเหล็กแท่ง ห้องควบคุม (คุณศักดิ์ชัย ไชยตมดัย)	09:17 - 10:17	63.1	82.7	-
	10:17 - 11:17	72.7	102.8	-
	11:17 - 12:17	66.2	85.1	-
	12:17 - 13:17	68.5	85.9	-
	13:17 - 14:17	64.7	86.3	-
	14:17 - 15:17	60.8	84.0	-
	15:17 - 16:17	75.1	92.7	-
	16:17 - 17:17	64.7	81.1	-
	Equivalent Level 8 hrs (Leq 8 hrs)	69.5		90
	Maximum Level (Lmax)	102.8		140

Remark : ^{1'} Notification of the Ministry of Industry regarding Working Environment, Occupation Health and Safety Measurements issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette, Vol.120, Part 138D dated December 3, B.E.2546 (2003).



(Ms.Thidarat Pukkha)
Laboratory Reviewer

(Ms.Thanida Bunrungrueng)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Work Place Noise
Measured Date : July 24, 2024
Measured By : Ms.Thunyaluck Saengyotha
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222115

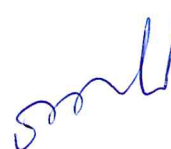
Quotation No. : MR2024-00106
Analysis No. : 2024-AD741-010
Report No. : 2024-RAAP465
Report Date : August 2, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
ลานแท่นรีด ห้องควบคุม (คุณเมานิด วงศ์พิน)	09:30 - 10:30	61.8	74.0	-
	10:30 - 11:30	61.8	74.0	-
	11:30 - 12:30	67.6	75.6	-
	12:30 - 13:30	67.6	76.6	-
	13:30 - 14:30	66.6	74.8	-
	14:30 - 15:30	67.2	79.7	-
	15:30 - 16:30	69.3	80.7	-
	16:30 - 17:30	70.0	78.7	-
	Equivalent Level 8 hrs (Leq 8 hrs)	67.3		90
	Maximum Level (Lmax)	80.7		140

Remark : ^{1'} Notification of the Ministry of Industry regarding Working Environment, Occupation Health and Safety Measurements issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette, Vol.120, Part 138D dated December 3, B.E.2546 (2003).



(Ms.Thidarat Pukkha)
Laboratory Reviewer

(Ms.Thanida Bunrungrueng)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Work Place Noise
Measured Date : July 24, 2024
Measured By : Ms.Thunyaluck Saengyotha
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222121

Quotation No. : MR2024-00106
Analysis No. : 2024-AD741-011
Report No. : 2024-RAAP466
Report Date : August 2, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
Pendulum Shear ห้องควบคุม (คุณธีศณะ ใจมั่นคง)	09:36 - 10:36	65.1	87.5	-
	10:36 - 11:36	66.3	85.7	-
	11:36 - 12:36	65.9	86.7	-
	12:36 - 13:36	67.4	85.7	-
	13:36 - 14:36	64.3	84.6	-
	14:36 - 15:36	81.4	114.0	-
	15:36 - 16:36	72.0	90.1	-
	16:36 - 17:36	65.3	83.3	-
	Equivalent Level 8 hrs (Leq 8 hrs)	73.4		90
	Maximum Level (Lmax)	114.0		140

Remark : ^{1'} Notification of the Ministry of Industry regarding Working Environment, Occupation Health and Safety Measurements issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette, Vol.120, Part 138D dated December 3, B.E.2546 (2003).



(Ms.Thidarat Pukkha)
Laboratory Reviewer




(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Work Place Noise
Measured Date : October 19, 2024
Measured By : Mr.Wadcharapong Phunkhetkit
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222117

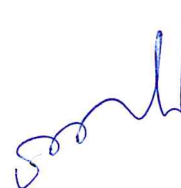
Quotation No. : MR2024-00106
Analysis No. : 2024-AF343-014
Report No. : 2024-RAAW652
Report Date : November 5, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ¹
เตาหลอมเหล็ก EAF ห้องควบคุม (คุณธีรพล สอนสาส์น)	08:44 - 09:44	68.8	83.0	-
	09:44 - 10:44	69.1	79.7	-
	10:44 - 11:44	70.0	82.1	-
	11:44 - 12:44	69.3	81.3	-
	12:44 - 13:44	68.6	80.2	-
	13:44 - 14:44	68.2	80.1	-
	14:44 - 15:44	69.8	83.2	-
	15:44 - 16:44	70.7	81.2	-
	Equivalent Level 8 hrs (Leq 8 hrs)	69.4		90
	Maximum Level (Lmax)	83.2		140

Remark : ¹ Notification of the Ministry of Industry regarding Working Environment, Occupation Health and Safety Measurements issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette, Vol.120, Part 138D dated December 3, B.E.2546 (2003).




(Ms.Thidarat Pukkha)
Laboratory Reviewer



(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Work Place Noise
Measured Date : October 19, 2024
Measured By : Mr.Wadcharapong Phunkhetkit
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222115

Quotation No. : MR2024-00106
Analysis No. : 2024-AF343-015
Report No. : 2024-RAAW653
Report Date : November 5, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
เครื่องหล่อเหล็กแท่ง ห้องควบคุม (จุดวัดใกล้ สอนน้อย)	09:03 - 10:03	63.1	80.9	-
	10:03 - 11:03	64.4	81.6	-
	11:03 - 12:03	63.9	76.9	-
	12:03 - 13:03	62.4	77.4	-
	13:03 - 14:03	71.0	94.5	-
	14:03 - 15:03	76.4	96.3	-
	15:03 - 16:03	71.0	88.3	-
	16:03 - 17:03	71.5	76.3	-
	Equivalent Level 8 hrs (Leq 8 hrs)	70.6		90
	Maximum Level (Lmax)	96.3		140

Remark : ^{1'} Notification of the Ministry of Industry regarding Working Environment, Occupation Health and Safety Measurements issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette, Vol.120, Part 138D dated December 3, B.E.2546 (2003).




(Ms.Thidarut Pukkha)
Laboratory Reviewer



(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Work Place Noise
Measured Date : October 19, 2024
Measured By : Mr.Wadcharapong Phunkhetkit
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222114

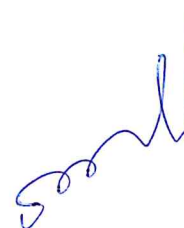
Quotation No. : MR2024-00106
Analysis No. : 2024-AF343-017
Report No. : 2024-RAAW655
Report Date : November 5, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
ลานแท่นรีด ห้องควบคุม (คุณพนม เนียดกระโทก)	09:21 - 10:21	67.8	80.8	-
	10:21 - 11:21	61.9	75.9	-
	11:21 - 12:21	60.9	69.4	-
	12:21 - 13:21	64.8	77.7	-
	13:21 - 14:21	69.3	80.9	-
	14:21 - 15:21	69.3	81.0	-
	15:21 - 16:21	69.5	82.6	-
	16:21 - 17:21	69.2	80.8	-
	Equivalent Level 8 hrs (Leq 8 hrs)	67.6		90
	Maximum Level (Lmax)	82.6		140

Remark : ^{1'} Notification of the Ministry of Industry regarding Working Environment, Occupation Health and Safety Measurements issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette, Vol.120, Part 138D dated December 3, B.E.2546 (2003).




(Ms.Thidarat Pukkha)
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(Ms.Thanida Bunrungrueang)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Work Place Noise
Measured Date : October 19, 2024
Measured By : Mr.Wadcharapong Phunkhetkit
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222112

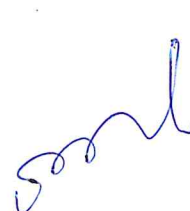
Quotation No. : MR2024-00106
Analysis No. : 2024-AF343-016
Report No. : 2024-RAAW654
Report Date : November 5, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
Pendulum Shear ห้องควบคุม (คุณธิศณะ ใจมั่นคง)	09:13 - 10:13	66.3	81.0	-
	10:13 - 11:13	51.8	79.6	-
	11:13 - 12:13	58.0	78.0	-
	12:13 - 13:13	63.9	82.9	-
	13:13 - 14:13	87.9	100.9	-
	14:13 - 15:13	67.4	85.6	-
	15:13 - 16:13	70.7	90.8	-
	16:13 - 17:13	61.6	79.8	-
	Equivalent Level 8 hrs (Leq 8 hrs)	79.0		90
	Maximum Level (Lmax)	100.9		140

Remark : ^{1'} Notification of the Ministry of Industry regarding Working Environment, Occupation Health and Safety Measurements issued under Factory Act B.E.2535 (1992), published in the Royal Government Gazette, Vol.120, Part 138D dated December 3, B.E.2546 (2003).




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