

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 : February 10, 2024
Sampling Time : 09:30-10:30
Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E, 10
Sampling By : Mr.Wanchana Seehamart, Registration No. ว-099-จ-7050
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
 Registration No.ว-099

Quotation No. : 2024-00105
Analysis No. : 2024-AA444-001
Received Date : February 12, 2024
Analytical Date : February 12-15, 2024
Report No. : 2024-RAAC668
Report Date : February 23, 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	63.08	-	-	-
6	Pressure in Stack	Incline Manometer	mmHg	759.47	-	-	-
7	Oxygen Rate	Electrochemical Sensor	%	20.61	-	-	-
8	Moisture	Condensation Method	%	3.66	-	-	-
9	Air Velocity	Type S Pitot Tube	m/s	8.95	-	-	-
10	Volumetric Flow Rate	Calculate	Nm ³ /hr	437,711	-	-	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	512,779	-	-	-
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	13	200	200	-
15	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	mg/m ³	24	376	376	-
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	2.6	240	320	40
17	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	ppm	53	-	690	-
18	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	mg/m ³	61	-	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)

Ncl

(Ms.Natnicha Sermmatiwong)

Laboratory Reviewer No. ว-099-ค-7666



(Signature of Ms. Ramita Taengthai)

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-7664

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 : February 10, 2024
Sampling Time : 10:40-11:50
Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E, 10
Sampling By : Mr.Wanchana Seehamart, Registration No. ว-099-จ-7050
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
 Registration No.ว-099

Quotation No. : 2024-00105
Analysis No. : 2024-AA444-002
Received Date : February 12, 2024
Analytical Date : February 12-15, 2024
Report No. : 2024-RAAC670
Report Date : February 23, 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	90.58	-	-	-
6	Pressure in Stack	Incline Manometer	mmHg	758.90	-	-	-
7	Oxygen Rate	Electrochemical Sensor	%	20.16	-	-	-
8	Moisture	Condensation Method	%	4.10	-	-	-
9	Air Velocity	Type S Pitot Tube	m/s	20.58	-	-	-
10	Volumetric Flow Rate	Calculate	Nm ³ /hr	625,443	-	-	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	796,879	-	-	-
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	16	200	200	-
15	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	mg/m ³	30	376	376	-
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	6.6	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).

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Nci.

(Ms.Natnicha Sermmatiwong)

Laboratory Reviewer No. ว-099-ค-7666



(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-7664

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 : February 10, 2024
Sampling Time : 09:20-10:18
Sampling Method : US.EPA. Method 1-4, 6C, 7E, 10
Sampling By : Mr.Wanchana Seehamart, Registration No. ว-099-ว-7050
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory Registration No.ว-099

Quotation No. : MR2024-00105
Analysis No. : 2024-AA444-003
Received Date : February 12, 2024
Analytical Date : February 12-13, 2024
Report No. : 2024-RAAC672
Report Date : February 23, 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	303.58	-	-	-	-
6	Pressure in Stack	Incline Manometer	mmHg	759.78	-	-	-	-
7	Oxygen Rate	Electrochemical Sensor	%	10.39	-	-	-	-
8	Moisture	Condensation Method	%	5.33	-	-	-	-
9	Air Velocity	Type S Pitot Tube	m/s	19.52	-	-	-	-
10	Volumetric Flow Rate ^{1'}	Calculate	Nm ³ /hr	87,522	-	-	-	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	178,930	-	-	-	-
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	46	61	200	200	150
15	Oxide of Nitrogen (NOx) ^{1'}	Instrumental Analyzer Method	mg/m ³	86	114	376	376	282
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	3.4	4.5	240	320	-
17	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	ppm	<1.0	<1.0	-	690	-
18	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	mg/m ³	<1.1	<1.1	-	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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Not. S

(Ms.Natnicha Sermmatiwong)

Laboratory Reviewer No. ว-099-ว-7666



(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ว-7664

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 : April 20, 2024
Sampling Time : 09:35-10:25
Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E, 10
Sampling By : Mr.Wanchana Seehamart, Registration No. ว-099-จ-7050
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099

Quotation No. : MR2024-00105
Analysis No. : 2024-AB710-001
Received Date : April 22, 2024
Analytical Date : April 22-26, 2024
Report No. : 2024-RAAH587
Report Date : April 30, 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	69.67	-	-	-
6	Pressure in Stack	Incline Manometer	mmHg	755.48	-	-	-
7	Oxygen Rate	Electrochemical Sensor	%	20.62	-	-	-
8	Moisture	Condensation Method	%	4.49	-	-	-
9	Air Velocity	Type S Pitot Tube	m/s	11.20	-	-	-
10	Volumetric Flow Rate	Calculate	Nm ³ /hr	529,687	-	-	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	641,540	-	-	-
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	6.1	376	376	-
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	<1.0	240	320	40
17	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	ppm	44	-	690	-
18	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	mg/m ³	50	-	790	-

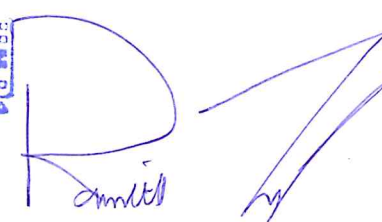
Remark : ^{1'} Reference condition is 25 degree Celsius at 1 Atmosphere and Dry Basis.

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 (Ms.Natnicha Sermmatiwong)
 Laboratory Reviewer No. ว-099-ค-7666


 (Ms.Ramita Taengthai)
 Laboratory Supervisor No. ว-099-ค-7664

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 : April 20, 2024
Sampling Time : 10:40-11:40
Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E, 10
Sampling By : Mr.Wanchana Seehamart, Registration No. ว-099-จ-7050
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
 Registration No.ว-099

Quotation No. : MR2024-00105
Analysis No. : 2024-AB710-002
Received Date : April 22, 2024
Analytical Date : April 22-26, 2024
Report No. : 2024-RAAH588
Report Date : April 30, 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	104.50	-	-	-
6	Pressure in Stack	Incline Manometer	mmHg	754.63	-	-	-
7	Oxygen Rate	Electrochemical Sensor	%	20.88	-	-	-
8	Moisture	Condensation Method	%	6.11	-	-	-
9	Air Velocity	Type S Pitot Tube	m/s	15.04	-	-	-
10	Volumetric Flow Rate	Calculate	Nm ³ /hr	428,646	-	-	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	582,454	-	-	-
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	21	376	376	-
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	18	240	320	40
17	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	ppm	13	-	690	-
18	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	mg/m ³	15	-	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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Ncl. S
(Ms.Natnicha Sermmatiwong)

Laboratory Reviewer No. ว-099-ค-7666

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-7664

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 : April 20, 2024
Sampling Time : 12:00-12:46
Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E, 10
Sampling By : Mr.Wanchana Seehamart, Registration No. ว-099-จ-7050
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099

Quotation No. : MR2024-00105
Analysis No. : 2024-AB710-003
Received Date : April 22, 2024
Analytical Date : April 22-26, 2024
Report No. : 2024-RAAH589
Report Date : April 30, 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	388.75	-	-	-	-
6	Pressure in Stack	Incline Manometer	mmHg	756.51	-	-	-	-
7	Oxygen Rate	Electrochemical Sensor	%	8.99	-	-	-	-
8	Moisture	Condensation Method	%	4.71	-	-	-	-
9	Air Velocity	Type S Pitot Tube	m/s	12.23	-	-	-	-
10	Volumetric Flow Rate ^{1'}	Calculate	Nm ³ /hr	47,896	-	-	-	-
11	Volumetric Flow Rate	Calculate	m ³ /hr	112,127	-	-	-	-
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	36	42	200	200	150
15	Oxide of Nitrogen (NO _x) ^{1'}	Instrumental Analyzer Method	mg/m ³	67	78	376	376	282
16	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	6.6	7.7	240	320	-
17	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	ppm	3.0	3.5	-	690	-
18	Carbon Monoxide (CO) ^{1'}	Instrumental Analyzer Method	mg/m ³	3.4	4.0	-	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) สาขาลาดับที่ 00005)

Ncl.

(Ms.Natnicha Sermmatiwong)

Laboratory Reviewer No. ว-099-ก-7666



Ramita

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ก-7664

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 : โรงพยาบาลส่งเสริมสุขภาพตำบลมาตาพุด ตำบลมาตาพุด อำเภอเมืองระยอง จังหวัดระยอง (ทางทิศเหนือของโครงการ)
GPS. Coordinate : UTM (WGS84) 47P 0735183 E, 1405874 N
Sampling Date : April 19-22, 2024
Sampling Time : 11:46
Sampling Method : U.S. EPA 40 CFR Part 50
Sampling By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : MR2024-00105
Analysis No. : 2024-AB857
Received Date : April 29, 2024
Analytical Date : April 29-May 7, 2024
Report No. : 2024-RAAI005
Report Date : May 7, 2024

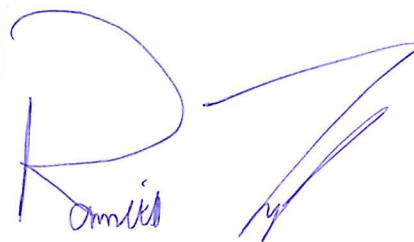
Parameter	Unit	Method of Analysis	Result			Standard ^{1'}
			Apr 19-20, 24	Apr 20-21, 24	Apr 21-22, 24	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	Hight-Volume, United States Environment Protection Agency (Exclude sampling)	0.078	0.067	0.080	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	Hight-Volume, United States Environment Protection Agency (Exclude sampling)	0.044	0.037	0.046	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 : ริมรั้วโรงงานทางด้านทิศเหนือ
GPS. Coordinate : UTM (WGS84) 47P 0733451 E, 1402582 N
Sampling Date : April 19-22, 2024
Sampling Time : 14:15
Sampling Method : U.S. EPA 40 CFR Part 50
Sampling By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : MR2024-00105
Analysis No. : 2024-AB857
Received Date : April 29, 2024
Analytical Date : April 29-May 7, 2024
Report No. : 2024-RAAI003
Report Date : May 7, 2024

Parameter	Unit	Method of Analysis	Result			Standard ^{1'}
			Apr 19-20, 24	Apr 20-21, 24	Apr 21-22, 24	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	Hight-Volume, United States Environment Protection Agency (Exclude sampling)	0.143	0.094	0.166	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	Hight-Volume, United States Environment Protection Agency (Exclude sampling)	0.081	0.033	0.099	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 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, 1402409 N
Sampling Date : April 19-22, 2024
Sampling Time : 14:56
Sampling Method : U.S. EPA 40 CFR Part 50
Sampling By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : MR2024-00105
Analysis No. : 2024-AB857
Received Date : April 29, 2024
Analytical Date : April 29-May 7, 2024
Report No. : 2024-RAAI004
Report Date : May 7, 2024

Parameter	Unit	Method of Analysis	Result			Standard ^{1'}
			Apr 19-20, 24	Apr 20-21, 24	Apr 21-22, 24	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	Hight-Volume, United States Environment Protection Agency (Exclude sampling)	0.132	0.151	0.152	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	Hight-Volume, United States Environment Protection Agency (Exclude sampling)	0.074	0.090	0.079	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).



Not. 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
Measured Source : Ambient Air Quality
Measured Point : โรงพยาบาลส่งเสริมสุขภาพตำบลมาบตาพุด ตำบลมาบตาพุด อำเภอเมืองระยอง จังหวัดระยอง (ทางทิศเหนือของโครงการ)
GPS. Coordinate : UTM (WGS84) 47P 0735183 E, 1405874 N
Measured Date : April 19-22, 2024
Measured By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : NOx Chemiluminescence Analyzer Horiba Model APNA-370 Serial Number KCDVY226

Quotation No. : MR2024-00105
Analysis No. : 2024-AB857-007
Report No. : 2024-RAAI673
Report Date : May 16, 2024

Interval Time	Result NO ₂ (ppm)			Standard ^{1'}
	Apr 19-20, 24	Apr 20-21, 24	Apr 21-22, 24	
12:00-13:00	0.0067	0.0119	0.0140	
13:00-14:00	0.0077	0.0082	0.0131	
14:00-15:00	0.0113	0.0125	0.0161	
15:00-16:00	0.0119	0.0133	0.0209	
16:00-17:00	0.0107	0.0104	0.0088	
17:00-18:00	0.0103	0.0096	0.0102	
18:00-19:00	0.0096	0.0101	0.0136	
19:00-20:00	0.0107	0.0109	0.0118	
20:00-21:00	0.0105	0.0108	0.0131	
21:00-22:00	0.0094	0.0089	0.0125	
22:00-23:00	0.0078	0.0073	0.0132	
23:00-00:00	0.0083	0.0073	0.0104	
00:00-01:00	0.0076	0.0073	0.0085	
01:00-02:00	0.0070	0.0078	0.0077	
02:00-03:00	0.0072	0.0064	0.0073	
03:00-04:00	0.0077	0.0062	0.0073	
04:00-05:00	0.0066	0.0062	0.0080	
05:00-06:00	0.0064	0.0066	0.0067	
06:00-07:00	0.0083	0.0071	0.0072	
07:00-08:00	0.0134	0.0089	0.0107	
08:00-09:00	0.0131	0.0091	0.0121	
09:00-10:00	0.0102	0.0134	0.0092	
10:00-11:00	0.0116	0.0155	0.0089	
11:00-12:00	0.0110	0.0195	0.0102	
24 Hours Average	0.0094	0.0098	0.0109	-
1 Hour Maximum	0.0134	0.0195	0.0209	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

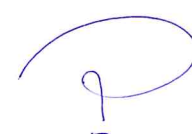
ANALYSIS REPORT

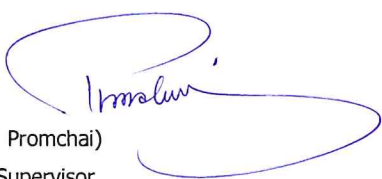
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Ambient Air Quality
Measured Point : โรงพยาบาลส่งเสริมสุขภาพตำบลมาตาพุด ตำบลมาตาพุด อำเภอเมืองระยอง จังหวัดระยอง (ทางทิศเหนือของโครงการ)
GPS. Coordinate : UTM (WGS84) 47P 0735183 E, 1405874 N
Measured Date : April 19-22, 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. : MR2024-00105
Analysis No. : 2024-AB857-007
Report No. : 2024-RAAI674
Report Date : May 16, 2024

Interval Time	Result CO (ppm)						Standard ^{1'}
	Apr 19-20, 24		Apr 20-21, 24		Apr 21-22, 24		
	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	
12:00-13:00	1.0	-	0.6	0.7	0.8	0.7	
13:00-14:00	0.9	-	0.6	0.7	0.7	0.7	
14:00-15:00	0.8	-	0.7	0.7	0.6	0.7	
15:00-16:00	0.8	-	0.7	0.6	0.5	0.7	
16:00-17:00	0.7	-	0.7	0.6	0.5	0.6	
17:00-18:00	0.8	-	0.7	0.6	0.6	0.6	
18:00-19:00	0.8	-	0.8	0.7	0.6	0.6	
19:00-20:00	0.9	0.8	0.9	0.7	0.6	0.6	
20:00-21:00	0.9	0.8	0.9	0.8	0.7	0.6	
21:00-22:00	0.8	0.8	0.7	0.8	0.7	0.6	
22:00-23:00	0.7	0.8	0.7	0.8	0.8	0.6	
23:00-00:00	0.7	0.8	0.7	0.8	0.7	0.6	
00:00-01:00	0.7	0.8	0.6	0.8	0.7	0.7	
01:00-02:00	0.6	0.8	0.6	0.7	0.6	0.7	
02:00-03:00	0.6	0.7	0.6	0.7	0.6	0.7	
03:00-04:00	0.6	0.7	0.6	0.7	0.6	0.7	
04:00-05:00	0.6	0.7	0.6	0.6	0.6	0.7	
05:00-06:00	0.6	0.6	0.6	0.6	0.6	0.6	
06:00-07:00	0.7	0.6	0.7	0.6	0.6	0.6	
07:00-08:00	0.9	0.7	0.8	0.6	0.7	0.6	
08:00-09:00	0.8	0.7	0.7	0.6	0.7	0.6	
09:00-10:00	0.6	0.7	0.7	0.7	0.5	0.6	
10:00-11:00	0.6	0.7	0.7	0.7	0.5	0.6	
11:00-12:00	0.6	0.7	0.7	0.7	0.5	0.6	
24 Hours Average	0.7	-	0.7	-	0.6	-	-
1 Hour Maximum	1.0	-	0.9	-	0.8	-	30
8 Hours Maximum	-	0.8	-	0.8	-	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 : ริมรั้วโรงงานทางด้านทิศเหนือ
GPS. Coordinate : UTM (WGS84) 47P 0733451 E, 1402582 N
Measured Date : April 19-22, 2024
Measured By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : NOx Chemiluminescence Analyzer Horiba Model APNA-370 Serial Number S581UWS0

Quotation No. : MR2024-00105
Analysis No. : 2024-AB857-001
Report No. : 2024-RAAI669
Report Date : May 16, 2024

Interval Time	Result NO ₂ (ppm)			Standard ^{1'}
	Apr 19-20, 24	Apr 20-21, 24	Apr 21-22, 24	
14:00-15:00	0.0095	0.0083	0.0088	
15:00-16:00	0.0083	0.0091	0.0089	
16:00-17:00	0.0101	0.0093	0.0119	
17:00-18:00	0.0112	0.0107	0.0104	
18:00-19:00	0.0125	0.0147	0.0160	
19:00-20:00	0.0220	0.0194	0.0185	
20:00-21:00	0.0243	0.0178	0.0198	
21:00-22:00	0.0192	0.0162	0.0207	
22:00-23:00	0.0151	0.0122	0.0200	
23:00-00:00	0.0169	0.0129	0.0161	
00:00-01:00	0.0145	0.0141	0.0176	
01:00-02:00	0.0109	0.0128	0.0133	
02:00-03:00	0.0101	0.0102	0.0150	
03:00-04:00	0.0093	0.0106	0.0097	
04:00-05:00	0.0101	0.0104	0.0106	
05:00-06:00	0.0113	0.0116	0.0073	
06:00-07:00	0.0108	0.0107	0.0108	
07:00-08:00	0.0084	0.0094	0.0091	
08:00-09:00	0.0099	0.0071	0.0079	
09:00-10:00	0.0107	0.0087	0.0095	
10:00-11:00	0.0084	0.0076	0.0086	
11:00-12:00	0.0101	0.0068	0.0104	
12:00-13:00	0.0095	0.0087	0.0093	
13:00-14:00	0.0096	0.0082	0.0089	
24 Hours Average	0.0122	0.0111	0.0125	-
1 Hour Maximum	0.0243	0.0194	0.0207	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) (Ms.Panicha Promchai)
 Laboratory Reviewer Laboratory Supervisor

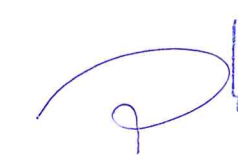
ANALYSIS REPORT

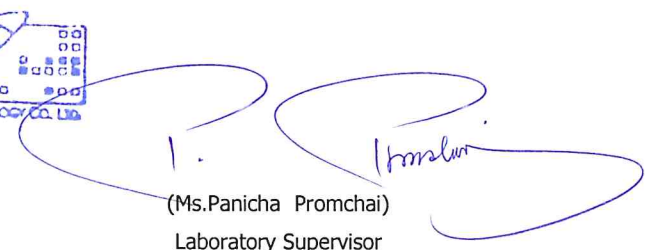
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Measured Source : Ambient Air Quality
Measured Point : ริมรั้วโรงงานทางด้านทิศเหนือ
GPS. Coordinate : UTM (WGS84) 47P 0733451 E, 1402582 N
Measured Date : April 19-22, 2024
Measured By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : CO NDIR Analyzer Thermo Model 48C Serial Number 0415406564

Quotation No. : MR2024-00105
Analysis No. : 2024-AB857-001
Report No. : 2024-RAAI670
Report Date : May 16, 2024

Interval Time	Result CO (ppm)						Standard ^{1'}
	Apr 19-20, 24		Apr 20-21, 24		Apr 21-22, 24		
	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	
14:00-15:00	0.6	-	0.4	0.5	0.4	0.5	
15:00-16:00	0.6	-	0.4	0.4	0.4	0.5	
16:00-17:00	0.7	-	0.4	0.4	0.4	0.4	
17:00-18:00	0.6	-	0.4	0.4	0.4	0.4	
18:00-19:00	0.6	-	0.5	0.4	0.5	0.4	
19:00-20:00	0.6	-	0.8	0.5	0.5	0.4	
20:00-21:00	0.6	-	0.7	0.5	0.5	0.4	
21:00-22:00	0.6	0.6	0.7	0.5	0.5	0.4	
22:00-23:00	0.6	0.6	0.5	0.6	0.6	0.5	
23:00-00:00	0.5	0.6	0.4	0.6	0.5	0.5	
00:00-01:00	0.5	0.6	0.5	0.6	0.5	0.5	
01:00-02:00	0.5	0.6	0.5	0.6	0.5	0.5	
02:00-03:00	0.5	0.6	0.5	0.6	0.5	0.5	
03:00-04:00	0.5	0.5	0.5	0.5	0.5	0.5	
04:00-05:00	0.5	0.5	0.5	0.5	0.5	0.5	
05:00-06:00	0.5	0.5	0.5	0.5	0.5	0.5	
06:00-07:00	0.5	0.5	0.5	0.5	0.5	0.5	
07:00-08:00	0.6	0.5	0.5	0.5	0.4	0.5	
08:00-09:00	0.5	0.5	0.5	0.5	0.5	0.5	
09:00-10:00	0.5	0.5	0.5	0.5	0.5	0.5	
10:00-11:00	0.5	0.5	0.4	0.5	0.4	0.5	
11:00-12:00	0.4	0.5	0.5	0.5	0.4	0.5	
12:00-13:00	0.4	0.5	0.5	0.5	0.4	0.4	
13:00-14:00	0.4	0.5	0.5	0.5	0.4	0.4	
24 Hours Average	0.5	-	0.5	-	0.5	-	-
1 Hour Maximum	0.7	-	0.8	-	0.6	-	30
8 Hours Maximum	-	0.6	-	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, 1402409 N
Measured Date : April 19-22, 2024
Measured By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : NOx Chemiluminescence Analyzer Horiba Model APNA-370 Serial Number U65W031M

Quotation No. : MR2024-00105
Analysis No. : 2024-AB857-004
Report No. : 2024-RAAI671
Report Date : May 16, 2024

Interval Time	Result NO ₂ (ppm)			Standard ^{1'}
	Apr 19-20, 24	Apr 20-21, 24	Apr 21-22, 24	
15:00-16:00	0.0126	0.0122	0.0102	
16:00-17:00	0.0124	0.0120	0.0108	
17:00-18:00	0.0126	0.0134	0.0128	
18:00-19:00	0.0130	0.0126	0.0133	
19:00-20:00	0.0127	0.0180	0.0120	
20:00-21:00	0.0130	0.0137	0.0124	
21:00-22:00	0.0150	0.0167	0.0126	
22:00-23:00	0.0152	0.0177	0.0138	
23:00-00:00	0.0182	0.0143	0.0178	
00:00-01:00	0.0152	0.0159	0.0170	
01:00-02:00	0.0107	0.0128	0.0125	
02:00-03:00	0.0107	0.0100	0.0139	
03:00-04:00	0.0118	0.0087	0.0099	
04:00-05:00	0.0110	0.0102	0.0105	
05:00-06:00	0.0106	0.0109	0.0075	
06:00-07:00	0.0118	0.0100	0.0095	
07:00-08:00	0.0108	0.0113	0.0091	
08:00-09:00	0.0111	0.0083	0.0099	
09:00-10:00	0.0140	0.0158	0.0145	
10:00-11:00	0.0117	0.0114	0.0154	
11:00-12:00	0.0111	0.0104	0.0147	
12:00-13:00	0.0119	0.0107	0.0108	
13:00-14:00	0.0099	0.0181	0.0095	
14:00-15:00	0.0083	0.0098	0.0102	
24 Hours Average	0.0123	0.0127	0.0121	-
1 Hour Maximum	0.0182	0.0181	0.0178	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

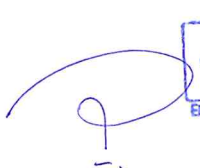
ANALYSIS REPORT

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, 1402409 N
Measured Date : April 19-22, 2024
Measured By : Mr.Akarawat Kochobog
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : CO NDIR Analyzer Thermo Model 48C Serial Number 0508011071

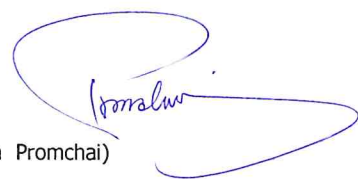
Quotation No. : MR2024-00105
Analysis No. : 2024-AB857-004
Report No. : 2024-RAAI672
Report Date : May 16, 2024

Interval Time	Result CO (ppm)						Standard ^{1/}
	Apr 19-20, 24		Apr 20-21, 24		Apr 21-22, 24		
	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	1 hr Avg	8 hr Avg	
15:00-16:00	0.6	-	0.6	0.6	0.6	0.6	
16:00-17:00	0.6	-	0.5	0.6	0.6	0.6	
17:00-18:00	0.6	-	0.6	0.6	0.6	0.6	
18:00-19:00	0.7	-	0.6	0.6	0.6	0.6	
19:00-20:00	0.7	-	0.6	0.6	0.5	0.6	
20:00-21:00	0.6	-	0.6	0.6	0.6	0.6	
21:00-22:00	0.6	-	0.5	0.6	0.6	0.6	
22:00-23:00	0.6	0.6	0.4	0.6	0.5	0.6	
23:00-00:00	0.6	0.6	0.4	0.5	0.5	0.6	
00:00-01:00	0.6	0.6	0.4	0.5	0.5	0.6	
01:00-02:00	0.6	0.6	0.4	0.5	0.5	0.5	
02:00-03:00	0.6	0.6	0.4	0.5	0.5	0.5	
03:00-04:00	0.6	0.6	0.4	0.4	0.5	0.5	
04:00-05:00	0.6	0.6	0.4	0.4	0.5	0.5	
05:00-06:00	0.6	0.6	0.5	0.4	0.6	0.5	
06:00-07:00	0.6	0.6	0.5	0.4	0.5	0.5	
07:00-08:00	0.7	0.6	0.5	0.4	0.5	0.5	
08:00-09:00	0.6	0.6	0.5	0.4	0.4	0.5	
09:00-10:00	0.6	0.6	0.5	0.5	0.5	0.5	
10:00-11:00	0.6	0.6	0.6	0.5	0.5	0.5	
11:00-12:00	0.7	0.6	0.6	0.5	0.5	0.5	
12:00-13:00	0.7	0.6	0.6	0.5	0.9	0.6	
13:00-14:00	0.7	0.6	0.6	0.6	0.7	0.6	
14:00-15:00	0.6	0.6	0.6	0.6	0.5	0.6	
24 Hours Average	0.6	-	0.5	-	0.6	-	-
1 Hour Maximum	0.7	-	0.6	-	0.9	-	30
8 Hours Maximum	-	0.6	-	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 : January 31, 2024
Sampling Time : 11:00
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. : 2024-00105
Analysis No. : 2024-AA319-001
Received Date : February 2, 2024
Analytical Date : February 2-9, 2024
Report No. : 2024-RAAC169
Report Date : February 12, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.2	5.5-9.0
Temperature	°C	Certified Thermometer	29.0	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	In-house method: TM-LA-001	12	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	3.1	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.2	5

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-8805




(Ms.Ramita Taengthai)
Laboratory Supervisor No. ว-099-ค-7664

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 : January 31, 2024
Sampling Time : 11:23
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. : 2024-00105
Analysis No. : 2024-AA319-002
Received Date : February 2, 2024
Analytical Date : February 2-12, 2024
Report No. : 2024-RAAC170
Report Date : February 12, 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	18	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	16	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	11	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	4.8	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	2.2	5


Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-8805



(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-7664

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 : January 31, 2024
Sampling Time : 11:10
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. : 2024-00105
Analysis No. : 2024-AA319-003
Received Date : February 2, 2024
Analytical Date : February 2-12, 2024
Report No. : 2024-RAAC171
Report Date : February 12, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.8	5.5-9.0
Temperature	°C	Certified Thermometer	28.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	9.8	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	9.8	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	<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	1.7	5

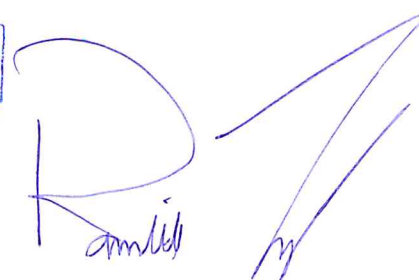
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-8805

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-7664

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 0733030 E, 1402608 N
Sampling Date : February 10, 2024
Sampling Time : 08:56
Sampling Method : Grab
Sampling By : Mr.Chatchai Yowapuy, Registration No.จ-099-จ-8845
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor


Quotation No. : 2024-00105
Analysis No. : 2024-AA442-001
Received Date : February 12, 2024
Analytical Date : February 12-21, 2024
Report No. : 2024-RAAC704
Report Date : February 21, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.6	5.5-9.0
Temperature	°C	Certified Thermometer	30.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	18	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	18	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	6.5	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	6.7	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.0	5

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-8805


(Ms.Ramita Taengthai)
Laboratory Supervisor No. จ-099-ค-7664

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, 1402327 N
Sampling Date : February 10, 2024
Sampling Time : 09:23
Sampling Method : Grab
Sampling By : Mr.Chatchai Yowapuy, Registration No.จ-099-จ-8845
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : 2024-00105
Analysis No. : 2024-AA442-002
Received Date : February 12, 2024
Analytical Date : February 12-19, 2024
Report No. : 2024-RAAC705
Report Date : February 21, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	7.2	5.5-9.0
Temperature	°C	Certified Thermometer	30.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	19	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	17	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	8.9	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	5.4	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	<1.0	5

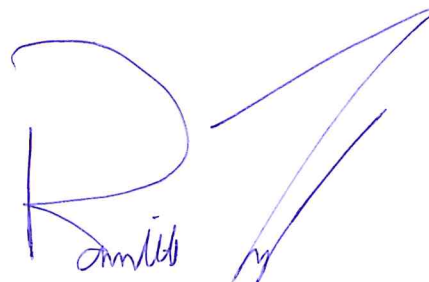
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-8805

(Ms.Ramita Taengthai)

Laboratory Supervisor No. จ-099-ค-7664

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 0733736 E, 1402366 N
Sampling Date : February 10, 2024
Sampling Time : 09:10
Sampling Method : Grab
Sampling By : Mr.Chatchai Yowapuy, Registration No.ว-099-จ-8845
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : 2024-00105
Analysis No. : 2024-AA442-003
Received Date : February 12, 2024
Analytical Date : February 12-21, 2024
Report No. : 2024-RAAC706
Report Date : February 21, 2024

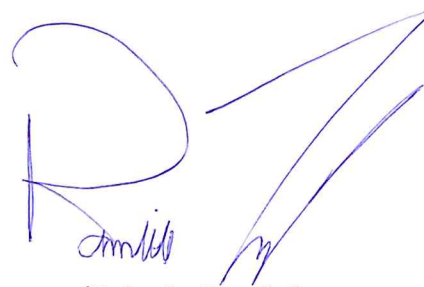
Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.0	5.5-9.0
Temperature	°C	Certified Thermometer	28.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	16	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	14	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	14	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	6.2	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.4	5

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-8805



(Ms.Ramita Taengthai)
Laboratory Supervisor No. ว-099-ค-7664

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, 1402625 N
Sampling Date : March 20, 2024
Sampling Time : 13:14
Sampling Method : Grab
Sampling By : Mr.Konlayut Inkum, Registration No.จ-099-จ-8847
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00105
Analysis No. : 2024-AB130-001
Received Date : March 21, 2024
Analytical Date : March 21-29, 2024
Report No. : 2024-RAAF161
Report Date : April 1, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.7	5.5-9.0
Temperature	°C	Certified Thermometer	30.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	27	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	25	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	13	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	13	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.8	5

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-8805

(Ms.Ramita Taengthai)
Laboratory Supervisor No. จ-099-จ-7664

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 : March 20, 2024
Sampling Time : 14:06
Sampling Method : Grab
Sampling By : Mr.Konlayut Inkum, Registration No.ว-099-จ-8847
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00105
Analysis No. : 2024-AB130-002
Received Date : March 21, 2024
Analytical Date : March 21-29, 2024
Report No. : 2024-RAAF162
Report Date : April 1, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.2	5.5-9.0
Temperature	°C	Certified Thermometer	30.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	26	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	27	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	26	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	8.7	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	3.0	5

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-8805

(Ms.Ramita Taengthai)
Laboratory Supervisor No. ว-099-ก-7664

ANALYSIS REPORT

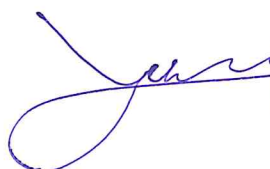
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหลังโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733739 E, 1402364 N
Sampling Date : March 20, 2024
Sampling Time : 14:21
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon, Registration No.ว-099-จ-8841
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor


Quotation No. : MR2024-00105
Analysis No. : 2024-AB711-001
Received Date : March 21, 2024
Analytical Date : March 21-April 1, 2024
Report No. : 2024-RAAH491
Report Date : April 30, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	9.0	5.5-9.0
Temperature	°C	Certified Thermometer	36.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	14	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	13	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	7.8	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	3.7	5

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-น-8805


(Ms. Ramita Taengthai)
Laboratory Supervisor No. ว-099-น-7664

ANALYSIS REPORT

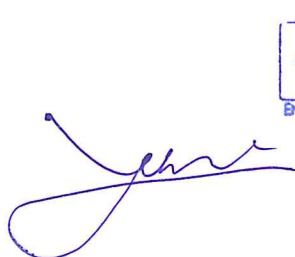
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : Irrigation Pond
GPS. Coordinate : UTM (WGS84) 47P 0733538 E, 1402605 N
Sampling Date : April 20, 2024
Sampling Time : 13:39
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon, Registration No.ว-099-จ-8841
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00105
Analysis No. : 2024-AB709-001
Received Date : April 22, 2024
Analytical Date : April 22-30, 2024
Report No. : 2024-RAAH656
Report Date : May 6, 2024

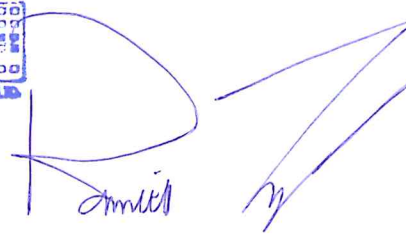
Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.4	5.5-9.0
Temperature	°C	Certified Thermometer	35.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	19	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	21	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	<5.0	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	5.1	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	<1.0	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, 23rd Edition, 2017.

^{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-8805

(Ms.Ramita Taengthai)
Laboratory Supervisor No. ว-099-ค-7664

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 : April 20, 2024
Sampling Time : 13:39
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon
Analyzed By : Environment Research & Technology Co., Ltd.
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00105
Analysis No. : 2024-AB709-001
Received Date : April 22, 2024
Analytical Date : April 22-25, 2024
Report No. : 2024-RAAH657
Report Date : May 6, 2024

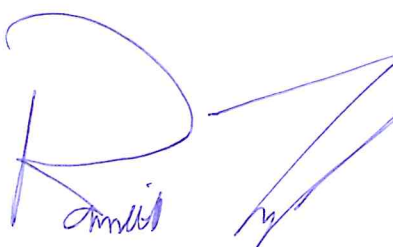
Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
Chromium	mg/L	Digestion, Inductively Coupled Plasma (ICP-OES)	<0.005	-

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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

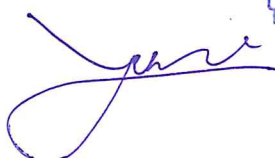
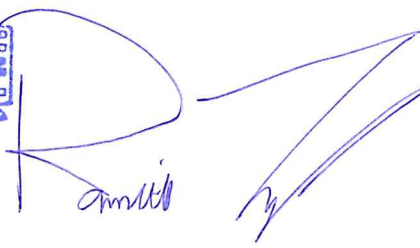
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Wastewater Sampling
Sampling Point : รางระบายน้ำหน้าโรงงาน
GPS. Coordinate : UTM (WGS84) 47P 0733150 E, 1402319 N
Sampling Date : April 20, 2024
Sampling Time : 14:29
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon, Registration No.ว-099-จ-8841
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00105
Analysis No. : 2024-AB709-002
Received Date : April 22, 2024
Analytical Date : April 22-30, 2024
Report No. : 2024-RAAH658
Report Date : May 6, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.1	5.5-9.0
Temperature	°C	Certified Thermometer	36.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	19	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	21	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	7.3	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	6.9	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	<1.0	5
Arsenic	mg/L	Digestion, Hydride Generation Atomic Absorption Spectrometry	0.0028	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, 23rd Edition, 2017.

^{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)

(Ms. Ramita Taengthai)

Laboratory Reviewer No. ว-099-ก-8805

Laboratory Supervisor No. ว-099-ก-7664

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 : April 20, 2024
Sampling Time : 14:29
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon
Analyzed By : Environment Research & Technology Co., Ltd.
Physical Properties : Turbid, Light Yellow, Sediment, Odor

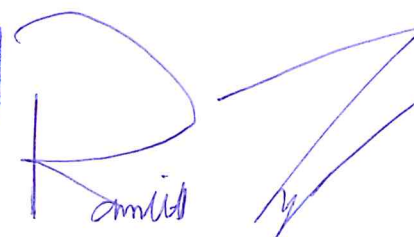
Quotation No. : MR2024-00105
Analysis No. : 2024-AB709-002
Received Date : April 22, 2024
Analytical Date : April 22-25, 2024
Report No. : 2024-RAAH659
Report Date : May 6, 2024

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, 23rd Edition, 2017.

^{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 : April 20, 2024
Sampling Time : 14:17
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon, Registration No.จ-099-จ-8841
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

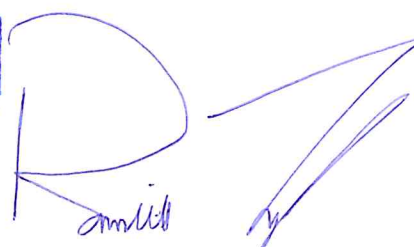
Quotation No. : MR2024-00105
Analysis No. : 2024-AB709-003
Received Date : April 22, 2024
Analytical Date : April 22-30, 2024
Report No. : 2024-RAAH660
Report Date : May 6, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.8	5.5-9.0
Temperature	°C	Certified Thermometer	36.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	14	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	13	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	5.8	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
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	0.006	0.2

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-ก-8805


(Ms. Ramita Taengthai)
Laboratory Supervisor No. จ-099-ก-7664

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 : April 20, 2024
Sampling Time : 14:17
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon
Analyzed By : Environment Research & Technology Co., Ltd.
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00105
Analysis No. : 2024-AB709-003
Received Date : April 22, 2024
Analytical Date : April 22-25, 2024
Report No. : 2024-RAAH662
Report Date : May 6, 2024

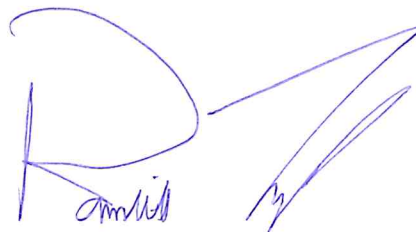
Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
Chromium	mg/L	Digestion, Inductively Coupled Plasma (ICP-OES)	<0.005	-

Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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)
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(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 0733537 E, 1402606 N
Sampling Date : May 17, 2024
Sampling Time : 13:15
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. : MR2024-00105
Analysis No. : 2024-AC323-001
Received Date : May 20, 2024
Analytical Date : May 20-27, 2024
Report No. : 2024-RAAJ824
Report Date : May 29, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	7.8	5.5-9.0
Temperature	°C	Certified Thermometer	32.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	15	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	14	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	13	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	6.6	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	<1.0	5

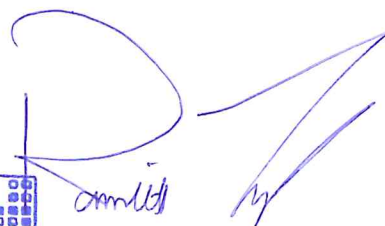
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-8805

(Ms.Ramita Taengthai)

Laboratory Supervisor No. จ-099-ค-7664

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 0733149 E, 1402322 N
Sampling Date : May 17, 2024
Sampling Time : 13:35
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. : MR2024-00105
Analysis No. : 2024-AC323-002
Received Date : May 20, 2024
Analytical Date : May 20-27, 2024
Report No. : 2024-RAAJ825
Report Date : May 29, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	7.5	5.5-9.0
Temperature	°C	Certified Thermometer	34.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	17	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	17	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	18	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	2.8	20
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.5	5

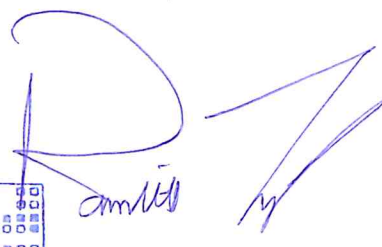
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-8805

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ค-7664

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, 1402362 N
Sampling Date : May 17, 2024
Sampling Time : 13:23
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. : MR2024-00105
Analysis No. : 2024-AC323-003
Received Date : May 20, 2024
Analytical Date : May 20-27, 2024
Report No. : 2024-RAAJ826
Report Date : May 29, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.8	5.5-9.0
Temperature	°C	Certified Thermometer	36.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	20	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	22	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	5.1	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	<1.0	5


Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-8805

(Ms. Ramita Taengthai)

Laboratory Supervisor No. ว-099-ก-7664

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 : June 19, 2024
Sampling Time : 10:25
Sampling Method : Grab
Sampling By : Mr.Chatchai Yowapuy, Registration No.จ-099-จ-8845
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00105
Analysis No. : 2024-AD016-001
Received Date : June 20, 2024
Analytical Date : June 20-July 3, 2024
Report No. : 2024-RAAN200
Report Date : July 4, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.1	5.5-9.0
Temperature	°C	Certified Thermometer	31.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	15	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	15	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	8.1	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	2.0	5

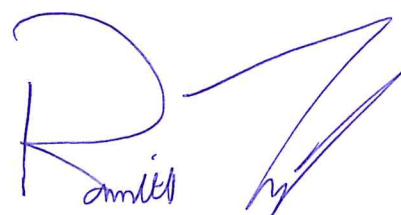
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-8805



(Ms.Ramita Taengthai)

Laboratory Supervisor No. จ-099-จ-7664

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 : June 19, 2024
Sampling Time : 10:47
Sampling Method : Grab
Sampling By : Mr.Chatchai Yowapuy, Registration No.ว-099-จ-8845
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00105
Analysis No. : 2024-AD016-002
Received Date : June 20, 2024
Analytical Date : June 20-July 3, 2024
Report No. : 2024-RAAN201
Report Date : July 4, 2024

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	7.1	5.5-9.0
Temperature	°C	Certified Thermometer	31.0	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	In-house method: TM-LA-001	15	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

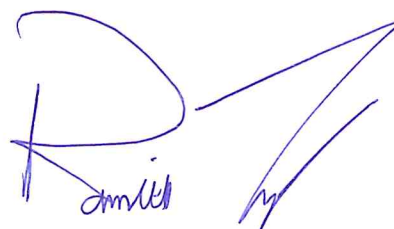
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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-8805

(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-ก-7664

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 : June 19, 2024
Sampling Time : 10:38
Sampling Method : Grab
Sampling By : Mr.Chatchai Yowapuy, Registration No.จ-099-จ-8845
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.จ-099
Physical Properties : Turbid, Light Yellow, Sediment, Odor

Quotation No. : MR2024-00105
Analysis No. : 2024-AD016-003
Received Date : June 20, 2024
Analytical Date : June 20-July 3, 2024
Report No. : 2024-RAAN202
Report Date : July 4, 2024

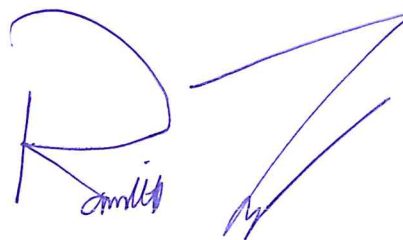
Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.2	5.5-9.0
Temperature	°C	Certified Thermometer	30.0	40
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	17	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	17	300
Total Suspended Solids	mg/L	In-house method: TM-LA-001	12	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, 23rd Edition, 2017.

^{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-ก-8805



(Ms.Ramita Taengthai)
Laboratory Supervisor No. จ-099-ก-7664

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 0733533 E, 1402529 N
Sampling Date : April 20, 2024
Sampling Time : 13:58
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon, Registration No.ว-099-จ-8841
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : -

Quotation No. : MR2024-00105
Analysis No. : 2024-AB708-001
Received Date : April 22, 2024
Analytical Date : April 22-May 13, 2024
Report No. : 2024-RAAH484
Report Date : May 16, 2024

Parameter	Unit	Method of Analysis	Result	Standard ^{1'}	
				TTLC	STLC*
Arsenic	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	16	500	5.0
Cadmium	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	90	100	1.0
Chromium	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	1,940	2,500	5
Lead	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	8,929	1,000	5.0
Mercury	mg/kg	Digestion, Cold-Vapor Atomic Absorption Spectrometry	3.3	20	0.2

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).
* The unit of STLC is mg/l



(Ms. Raiwin Posit)
Laboratory Reviewer No. ว-099-ค-7665


(Ms. Ramita Taengthai)
Laboratory Supervisor No. ว-099-ค-7664

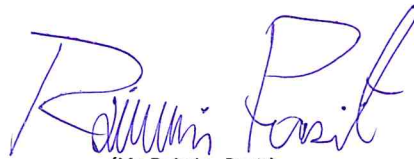
ANALYSIS REPORT

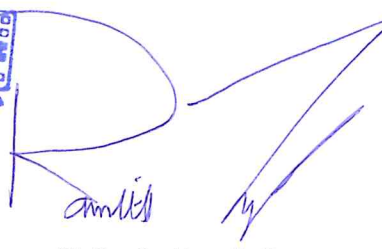
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00005)
Address : 1 Map Ta Phut Industrial Estate, I-7 Road, Map Ta Phut, Mueang Rayong, Rayong 21150
Project Name : โครงการขยายกำลังการผลิตเหล็กเส้นก่อสร้าง
Sampling Source : Solid Waste Sampling
Sampling Point : ภาวตะกอนจากระบบบำบัดน้ำเสีย (Sludge Drying Bed)
GPS. Coordinate : UTM (WGS84) 47P 0733517 E, 1402580 N
Sampling Date : April 20, 2024
Sampling Time : 13:46
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon, Registration No.ว-099-จ-8841
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : -

Quotation No. : MR2024-00105
Analysis No. : 2024-AB708-004
Received Date : April 22, 2024
Analytical Date : April 22-May 8, 2024
Report No. : 2024-RAAH487
Report Date : May 16, 2024

Parameter	Unit	Method of Analysis	Result	Standard ^{1'}	
				TTLIC	STLC*
Arsenic	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	27	500	5.0
Cadmium	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	13	100	1.0
Chromium	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	579	2,500	5
Lead	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	23	1,000	5.0
Mercury	mg/kg	Digestion, Cold-Vapor Atomic Absorption Spectrometry	<0.1	20	0.2

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).
* The unit of STLC is mg/l


(Ms. Raiwin Posit)
Laboratory Reviewer No. ว-099-ก-7665


(Ms. Ramita Taengthai)
Laboratory Supervisor No. ว-099-ก-7664

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 : ภาคตะกอนจากระบบบำบัดน้ำเสีย (Sludge Drying Bed)
GPS. Coordinate : UTM (WGS84) 47P 0733517 E, 1402580 N
Sampling Date : April 20, 2024
Sampling Time : 13:46
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon
Analyzed By : Environment Research & Technology Co., Ltd.
Physical Properties : -

Quotation No. : MR2024-00105
Analysis No. : 2024-AB708-004
Received Date : April 22, 2024
Analytical Date : April 22-May 8, 2024
Report No. : 2024-RAAJ065
Report Date : May 16, 2024

Parameter	Unit	Method of Analysis	Result	Standard ^{1'}	
				TTLC	STLC*
Oil & Grease ^{2'}	%	Soxhlet Extraction	1.94	-	-

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.

* The unit of STLC is mg/l



(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 : Solid Waste Sampling
Sampling Point : ภาชนะเหล็ก (Slag)
GPS. Coordinate : UTM (WGS84) 47P 0733685 E, 1402588 N
Sampling Date : April 20, 2024
Sampling Time : 14:39
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon, Registration No.ว-099-จ-8841
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : -

Quotation No. : MR2024-00105
Analysis No. : 2024-AB708-002
Received Date : April 22, 2024
Analytical Date : April 22-May 8, 2024
Report No. : 2024-RAAH485
Report Date : May 16, 2024

Parameter	Unit	Method of Analysis	Result	Standard ^{1'}	
				TTLIC	STLC*
Arsenic	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	1.9	500	5.0
Cadmium	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	4.3	100	1.0
Chromium	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	337	2,500	5
Lead	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	24	1,000	5.0
Mercury	mg/kg	Digestion, Cold-Vapor Atomic Absorption Spectrometry	0.2	20	0.2

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).
* The unit of STLC is mg/l



Raiwin Posit
(Ms.Raiwin Posit)
Laboratory Reviewer No. ว-099-ค-7665

Ramita Taengthai
(Ms.Ramita Taengthai)
Laboratory Supervisor No. ว-099-ค-7664

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 : ภาคตะวันออก (Scale)
GPS. Coordinate : UTM (WGS84) 47P 0733459 E, 1402411 N
Sampling Date : April 20, 2024
Sampling Time : 14:07
Sampling Method : Grab
Sampling By : Mr.Natthapon Suttimon, Registration No.ว-099-จ-8841
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : -

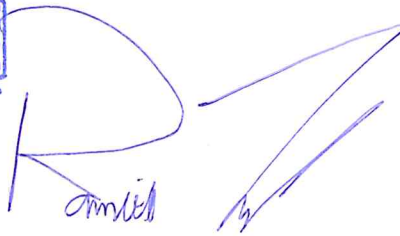
Quotation No. : MR2024-00105
Analysis No. : 2024-AB708-003
Received Date : April 22, 2024
Analytical Date : April 22-May 8, 2024
Report No. : 2024-RAAH486
Report Date : May 16, 2024

Parameter	Unit	Method of Analysis	Result	Standard ^{1'}	
				TTLIC	STLC*
Arsenic	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	37	500	5.0
Cadmium	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	14	100	1.0
Chromium	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	822	2,500	5
Lead	mg/kg	Digestion, Inductively Coupled Plasma (ICP-OES)	21	1,000	5.0
Mercury	mg/kg	Digestion, Cold-Vapor Atomic Absorption Spectrometry	<0.1	20	0.2

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).

* The unit of STLC is mg/l



(Ms. Raiwin Posit)
Laboratory Reviewer No. ว-099-ค-7665


(Ms. Ramita Taengthai)
Laboratory Supervisor No. ว-099-ค-7664

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 : April 20, 2024
Sampling Time : 08:55-11:09
Sampling Method : NIOSH
Sampling By : Mr.Natthapon Suttimon
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : MR2024-00105
Analysis No. : 2024-AB718
Received Date : April 22, 2024
Analytical Date : April 22-24, 2024
Report No. : 2024-RAAH507
Report Date : April 29, 2024

Item	Sampling Area	Parameter	Method of Analysis	Unit	Result	Standard	
						Thai ^{1'}	ACGIH ^{2'}
1	หน้าเตาหลอมเหล็ก EAF	Inhalable Dust	Gravimetric	mg/m ³	1.5	-	10
		Respirable Dust	Gravimetric	mg/m ³	0.99	-	3
2	จุดปฏิบัติงาน CCM	Inhalable Dust	Gravimetric	mg/m ³	2.5	-	10
		Respirable Dust	Gravimetric	mg/m ³	1.6	-	3
3	ลานแท่นรีด	Inhalable Dust	Gravimetric	mg/m ³	0.15	-	10
		Respirable Dust	Gravimetric	mg/m ³	<0.10	-	3
4	ลานนับเหล็กของผู้รับเหมา	Inhalable Dust	Gravimetric	mg/m ³	<0.10	-	10
		Respirable Dust	Gravimetric	mg/m ³	<0.10	-	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.

Nat. 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

Measured Source

: Work Place Air Temperature

Measured Date

: April 20, 2024

Measured By

: Ms.Thunyaluck Saengyotha

Analyzed By

: Environment Research & Technology Co., Ltd.

Measured Instrument

: Heat Stress Monitor/Electronic Quest Technologies Model QT-34 Serial Number TEC050027

Quotation No. : MR2024-00105

Analysis No. : 2024-AB730-005

Report No. : 2024-RAAH230

Report Date : April 30, 2024

Measured Location	Employee Name	Duration	Measurement Temperature; °C				Job Description/ Activities	Work Load, WL		Standard ^{2'}
			T _{NWB}	T _{DB}	T _{GT}	WBGT ^{1'} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	
- ห้องพักพนักงาน CCM (Indoor) - จุดปฏิบัติงาน CCM (Indoor)	คุณประสิทธิ์ พรหมมาโชน	10:08-10:38	19.2	25.8	26.2	29.0	- นิ่งพัก	4.5	162.0	Light 34.0
		10:38-12:08	29.2	35.8	37.0	31.5	สังเกตการทำงานเครื่องจักร	4.5		
							- นิ่ง เขี่ยเหล็ก			
							- เดิน ทำงานด้วยแขนทั้ง 2 ข้าง (หนัก) การเผาผลาญพื้นฐานของร่างกาย	93.0 60.0		

Remark : T_{NWB} = Nature Wet Bulb Temperature, T_{DB} = Dry Bulb Temperature, T_{GT} = Globe Temperature, WBGT = Wet Bulb Globe Temperature Index.
1' Calculate by ((WBGT₁ x Time₁)+(WBGT₂ x Time₂)+...+(WBGT_n x Time_n)) / (Time₁ + Time₂ +...+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



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

: April 20, 2024

Measured By

: Ms.Thunyaluck Saengyotha

Analyzed By

: Environment Research & Technology Co., Ltd.

Measured Instrument

: Heat Stress Monitor/Electronic Quest Technologies Model QT-32 Serial Number TPH030060

Quotation No.

: MR2024-00105

Analysis No.

: 2024-AB730-006

Report No.

: 2024-RAAH231

Report Date

: April 30, 2024

Measured Location	Employee Name	Duration	Measurement Temperature; °C				Job Description/ Activities	Work Load, WL		Standard ^{2'}
			T _{NWB}	T _{DB}	T _{gT}	WBGT ^{1'} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	
- ห้องควบคุม (Indoor) - หน้าตาดาลอมเหล็ก EAF (Indoor)	คุณเกื้อกูล โกมลาลัย	10:14-11:59	17.7	23.5	24.2	19.7	ควบคุมเครื่องจักร - นั่ง ทำงานด้วยมือ (เบา) เดินขึ้นลงเพลิง			
		11:59-12:14	31.6	40.6	49.1	36.9	- ยืน ทำงานด้วยแขนทั้ง 2 ข้าง (หนัก) การเผาผลาญพื้นฐานของร่างกาย	36.8	120.0	Light
		-	-	-	-	-	-	23.2	60.0	34.0

Remark : T_{NWB} = Nature Wet Bulb Temperature, T_{DB} = Dry Bulb Temperature, T_{gT} = Globe Temperature, WBGT = Wet Bulb Globe Temperature Index.
1' Calculate by ((WBGT₁ x Time₁)+(WBGT₂ x Time₂)+...+(WBGT_n x Time_n)) / (Time₁ + Time₂ +...+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

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

: Work Place Air Temperature

Measured Date

: April 20, 2024

Measured By

: Ms.Thunyaluck Saengyotha

Analyzed By

: Environment Research & Technology Co., Ltd.

Measured Instrument

: Heat Stress Monitor/Electronic Quest Technologies Model QT-32 Serial Number TPI030030

Quotation No.

: MR2024-00105

Analysis No.

: 2024-AB730-004

Report No.

: 2024-RAAH229

Report Date

: April 30, 2024

Measured Location	Employee Name	Duration	Measurement Temperature; °C				Job Description/ Activities	Work Load, WL		Standard ^{2'}
			T _{NWB}	T _{DB}	T _{GT}	WBGT ^{1'} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	
ลานแทนบริด (Indoor)	คุณภาณุวัฒน์ กันมาวุฒิ	10:03-12:03	32.1	38.9	39.5	34.3*	ซ่อมเครื่องจักร - ถิ่น ทำงานด้วยร่างกายทุกส่วน (เบา) ตรวจสอบการทำงานของเครื่องจักร - เดินบนพื้นราบ การเผาลาญพื้นฐานของร่างกาย	123.0	243.0	Moderate
								60.0		32.0

Remark : T_{NWB} = Nature Wet Bulb Temperature, T_{DB} = Dry Bulb Temperature, T_{GT} = Globe Temperature, WBGT = Wet Bulb Globe Temperature Index.
1' Calculate by ((WBGT₁ x Time₁) + (WBGT₂ x Time₂) + ... + (WBGT_n x Time_n)) / (Time₁ + Time₂ + ... + 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).
* Not within standard.

(Ms.Thidar 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 Air Temperature

Measured Date

: April 20, 2024

Measured By

: Ms.Thunyalluck Saengyotha

Analyzed By

: Environment Research & Technology Co., Ltd.

Measured Instrument

: Heat Stress Monitor/Electronic Metrosonics Model hs-32 Serial Number MCF010006

Quotation No. : MR2024-00105

Analysis No. : 2024-AB730-002

Report No. : 2024-RAAH227

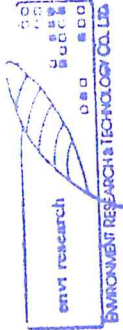
Report Date : April 30, 2024

Measured Location	Employee Name	Duration	Measurement Temperature; °C				Job Description/ Activities	Work Load, WL			Standard ^{2'}
			T _{NWB}	T _{DB}	T _{GT}	WBGT ^{1'} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	Workload Rate	
ลานบ่มเหล็กของรีไซเคิล (Indoor)	คุณวัชรุม แก้วกึ่ง	09:56-11:56	30.3	36.6	37.4	32.4	บ่มเหล็ก - นั่ง ทำงานด้วยแขนทั้ง 2 ข้าง (รับ) การเผาผลาญพื้นฐานของร่างกาย	108.0	168.0	Light	34.0
								60.0			

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

^{1'} Calculate by ((WBGT1 x Time1)+(WBGT2 x Time2)+...+(WBGTn x Timen)) / (Time1 + Time2 +...+ 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

:Work Place Air Temperature

Measured Date

:April 20, 2024

Measured By

:Ms.Thunyaluek Saengyotha

Analyzed By

:Environment Research & Technology Co., Ltd.

Measured Instrument

:Heat Stress Monitor/Electronic Metrosonics Model hs-32 Serial Number MCB030006

Quotation No.

: MR2024-00105

Analysis No.

: 2024-AB730-003

Report No.

: 2024-RAAH228

Report Date

: April 30, 2024

Measured Location	Employee Name	Duration	Measurement Temperature; °C				Job Description/ Activities	Work Load, WL			Standard ^{2'}
			T _{NWB}	T _{DB}	T _{GT}	WBGT ^{1'} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	Workload Rate	
Pendulum Shear (Indoor)	คุณดนัย บัองพู่	10:00-12:00	30.6	39.8	40.5	33.6	ควบคุมเครื่องตัดเหล็ก - ยืน ทำงานด้วยแขนทั้ง 2 ข้าง (เบา) การเผาผลาญพื้นฐานของร่างกาย	126.0	186.0	Light	34.0
								60.0			

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

^{1'} Calculate by ((WBGT_i x Time_i)+(WBGT₂ x Time₂)+...+(WBGT_n x Time_n)) / (Time₁ + Time₂ +...+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.Thidararat 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 Air Temperature

Measured Date

:April 20, 2024

Measured By

:Ms.Thunyaluck Saengyotha

Analyzed By

:Environment Research & Technology Co., Ltd.

Measured Instrument

:Heat Stress Monitor/Electronic Quest Technologies Model QT-34 Serial Number TEH070023

Quotation No. : MR2024-00105

Analysis No. : 2024-AB730-001

Report No. : 2024-RAAH226

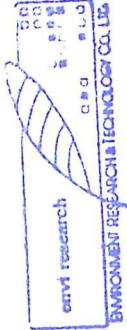
Report Date : April 30, 2024

Measured Location	Employee Name	Duration	Measurement Temperature; °C				Job Description/ Activities	Work Load, WL		Standard ^{2'}
			T _{NWB}	T _{DB}	T _{GT}	WBGT ^{1'} (Avg.)		Metabolic Rate (Kcal/hr)	Metabolic Rate Average (Kcal/hr)	
จุดผลิตเหล็กเส้นในรูป (Indoor)	คุณวรงค์ วงษ์สงคราม	09:49-11:49	30.3	35.3	37.0	32.3	ควบคุมเครื่องจักร - ยืน ทำงานด้วยแขนทั้ง 2 ข้าง (เบา) การเผาลายพื้นฐานของร่างกาย	126.0	186.0	34.0
								60.0		

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

^{1'} Calculate by ((WBGT₁ x Time₁)+(WBGT₂ x Time₂+...+(WBGT_n x Time_n)) / (Time₁ + Time₂ +...+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.Thidararat 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 :Mr.Noppasit Taweepornpadit
Analyzed By :Environment Research & Technology Co., Ltd.

Quotation No. : 2024-00105
Analysis No. : 2024-AA474
Report No. : 2024-RAAC590
Report Date : February 20, 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	คุณชาญชัย จันทพงษ์ม	08:00 - 16:00	8.00	Feb 10, 24	08:06 - 15:16	7.10	190600222	107.20*	85.3*
2	หน้าเตาหลอมเหล็ก EAF	คุณสมชาย ทองนาค	08:00 - 16:00	8.00	Feb 10, 24	08:17 - 15:24	7.07	180200311	179.50*	87.5*
3	เตาหลอมเหล็ก LF	คุณเกียรติชัย ทองน้อย	08:00 - 16:00	8.00	Feb 10, 24	08:20 - 15:29	7.09	190600233	7.70	73.9
4	จุดปฏิบัติงาน CCM	คุณไกรทอง ศรีคำ	08:00 - 16:00	8.00	Feb 10, 24	08:27 - 15:39	7.12	170400043	350.00*	90.4*
5	Pendulum Shear	คุณธีรเดช ใจมั่นคง	08:00 - 16:00	8.00	Feb 10, 24	08:36 - 15:44	7.08	190800266	40.90	81.1
6	ลานแปรรีด	คุณรังสิพัทธ์ อิ่มอม	08:00 - 16:00	8.00	Feb 10, 24	08:38 - 15:47	7.09	170400064	60.80	82.8
7	ลานนับเหล็กของผู้รับเหมา	คุณบัวตม แก้วกั้ง	08:00 - 16:00	8.00	Feb 10, 24	08:47 - 15:58	7.11	190800268	87.50	84.4
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 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 : Personal Noise Dose
Measured By : Ms.Thunyaluck Saengyotha
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : MR2024-00105
Analysis No. : 2024-AB730
Report No. : 2024-RAAH273
Report Date : April 30, 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	คุณวราพงษ์ วงษ์สองคอน	08:00 – 16:00	8.00	Apr 20, 24	08:39 – 15:51	7.12	220100179	64.20	83.1
2	หน้าเตาหลอมเหล็ก EAF	คุณเกียรติกุล โกมลาลย์	08:00 – 16:00	8.00	Apr 20, 24	08:58 – 16:08	7.10	170400064	94.10	84.7
3	เตาหลอมเหล็ก LF	คุณชาติศรี พรหมพิณีจ	08:00 – 16:00	8.00	Apr 20, 24	09:03 – 16:11	7.08	190600235	186.10*	87.7*
4	จุดปฏิบัติงาน CCM	คุณประทีปชัย พรหมวิสัย	08:00 – 16:00	8.00	Apr 20, 24	09:08 – 16:13	7.05	180200304	236.60*	88.7*
5	ลานแท่นรีด	คุณภาณุวัฒน์ กันยาวดี	08:00 – 16:00	8.00	Apr 20, 24	09:24 – 16:26	7.02	180200312	4.00	71.0
6	Pendulum Shear	คุณณัฏฐ์ รุ่งทอง	08:00 – 16:00	8.00	Apr 20, 24	09:24 – 16:26	7.02	170400055	0.76	63.8
7	ลานนับเหล็กของผู้รับเหมา	คุณวัฒน์ แก้วกิ่ง	08:00 – 16:00	8.00	Apr 20, 24	09:29 – 16:30	7.01	190800276	70.70	83.5
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 : February 10, 2024
Measured By : Mr.Noppasit Taweepornpadit
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222119

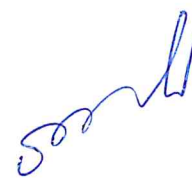
Quotation No. : 2024-00105
Analysis No. : 2024-AA474-001
Report No. : 2024-RAAC586
Report Date : February 20, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
เดาหลอมเหล็ก EAF ห้องควบคุม	08:16 - 09:16	69.3	82.5	-
	09:16 - 10:16	68.0	81.6	-
	10:16 - 11:16	68.5	80.7	-
	11:16 - 12:16	68.5	81.0	-
	12:16 - 13:16	69.6	82.4	-
	13:16 - 14:16	67.5	80.2	-
	14:16 - 15:16	69.3	82.5	-
	15:16 - 16:16	68.0	81.6	-
	Equivalent Level 8 hrs (Leq 8 hrs)	68.6		90
	Maximum Level (Lmax)	82.5		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 : February 10, 2024
Measured By : Mr.Noppasit Taweeponpadit
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222109


Quotation No. : 2024-00105
Analysis No. : 2024-AA474-002
Report No. : 2024-RAAC587
Report Date : February 20, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
เครื่องหล่อเหล็กแท่ง ห้องควบคุม	08:25 - 09:25	64.0	81.0	-
	09:25 - 10:25	64.4	83.9	-
	10:25 - 11:25	61.5	77.3	-
	11:25 - 12:25	62.9	74.7	-
	12:25 - 13:25	63.9	81.6	-
	13:25 - 14:25	61.6	77.0	-
	14:25 - 15:25	64.7	84.8	-
	15:25 - 16:25	64.6	75.4	-
	Equivalent Level 8 hrs (Leq 8 hrs)	63.6		90
	Maximum Level (Lmax)	84.8		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 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 : February 10, 2024
Measured By : Mr.Noppasit Taweepornpadit
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222111

Quotation No. : 2024-00105
Analysis No. : 2024-AA474-003
Report No. : 2024-RAAC588
Report Date : February 20, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
Pendulum Shear ห้องควบคุม	08:36 - 09:36	67.6	85.8	-
	09:36 - 10:36	67.2	87.9	-
	10:36 - 11:36	67.3	83.5	-
	11:36 - 12:36	66.2	88.2	-
	12:36 - 13:36	66.9	87.9	-
	13:36 - 14:36	59.2	76.8	-
	14:36 - 15:36	66.5	82.6	-
	15:36 - 16:36	65.6	78.8	-
	Equivalent Level 8 hrs (Leq 8 hrs)	66.3		90
	Maximum Level (Lmax)	88.2		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 : February 10, 2024
Measured By : Mr.Noppasit Taweepornpadit
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222110

Quotation No. : 2024-00105
Analysis No. : 2024-AA474-004
Report No. : 2024-RAAC589
Report Date : February 20, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
แท่นรีดเหล็ก ห้องควบคุม	08:40 - 09:40	70.6	79.5	-
	09:40 - 10:40	70.3	76.8	-
	10:40 - 11:40	69.3	77.0	-
	11:40 - 12:40	67.6	77.9	-
	12:40 - 13:40	69.0	78.8	-
	13:40 - 14:40	64.7	75.0	-
	14:40 - 15:40	68.8	77.7	-
	15:40 - 16:40	67.4	74.7	-
	Equivalent Level 8 hrs (Leq 8 hrs)	68.8		90
	Maximum Level (Lmax)	79.5		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 : April 20, 2024
Measured By : Ms.Thunyaluck Saengyotha
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222123

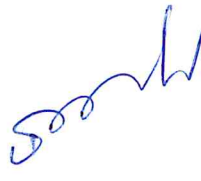
Quotation No. : MR2024-00105
Analysis No. : 2024-AB730-014
Report No. : 2024-RAAH246
Report Date : April 30, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
เดาหลอมเหล็ก EAF ห้องควบคุม (คุณเกื้อกุล โกมลย์)	08:49 - 09:49	70.5	81.7	-
	09:49 - 10:49	70.4	83.9	-
	10:49 - 11:49	68.9	81.2	-
	11:49 - 12:49	70.0	81.1	-
	12:49 - 13:49	68.9	78.8	-
	13:49 - 14:49	69.2	79.9	-
	14:49 - 15:49	68.1	81.1	-
	15:49 - 16:49	69.7	79.7	-
	Equivalent Level 8 hrs (Leq 8 hrs)	69.5		90
	Maximum Level (Lmax)	83.9		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 : April 20, 2024
Measured By : Ms.Thunyaluck Saengyotha
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222119

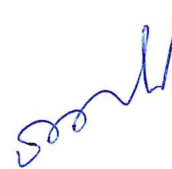
Quotation No. : MR2024-00105
Analysis No. : 2024-AB730-015
Report No. : 2024-RAAH247
Report Date : April 30, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
เครื่องหล่อเหล็กแท่ง ห้องควบคุม (คุณประกิตชัย พรหมมาโฮม)	09:07 - 10:07	67.4	88.1	-
	10:07 - 11:07	63.4	84.0	-
	11:07 - 12:07	67.0	97.4	-
	12:07 - 13:07	67.6	91.4	-
	13:07 - 14:07	64.7	85.2	-
	14:07 - 15:07	65.7	88.8	-
	15:07 - 16:07	69.9	91.1	-
	16:07 - 17:07	70.1	88.2	-
	Equivalent Level 8 hrs (Leq 8 hrs)	67.5		90
	Maximum Level (Lmax)	97.4		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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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 : April 20, 2024
Measured By : Ms.Thunyaluck Saengyotha
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222109


Quotation No. : MR2024-00105
Analysis No. : 2024-AB730-016
Report No. : 2024-RAAH248
Report Date : April 30, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
ลานแท่นรีด ห้องควบคุม (จุดเกาหน้าวัดกันยาวุฒิ)	09:16 - 10:16	71.1	82.4	-
	10:16 - 11:16	70.7	81.8	-
	11:16 - 12:16	70.6	86.0	-
	12:16 - 13:16	69.0	80.0	-
	13:16 - 14:16	70.9	80.8	-
	14:16 - 15:16	71.1	83.1	-
	15:16 - 16:16	70.6	79.9	-
	16:16 - 17:16	70.3	79.4	-
	Equivalent Level 8 hrs (Leq 8 hrs)	70.6		90
	Maximum Level (Lmax)	86.0		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).



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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 : April 20, 2024
Measured By : Ms.Thunyaluck Saengyotha
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : Integrating Sound Level Meter ACO Model 6236 Serial Number 222122

Quotation No. : MR2024-00105
Analysis No. : 2024-AB730-017
Report No. : 2024-RAAH249
Report Date : April 30, 2024

Measured Location	Interval Time	Equivalent Level; dB(A)	Maximum Level; dB(A)	Standard ^{1'}
Pendulum Shear ห้องควบคุม (คุณดนัย ป้องหนู)	09:22 - 10:22	66.8	84.4	-
	10:22 - 11:22	66.0	87.6	-
	11:22 - 12:22	69.0	82.9	-
	12:22 - 13:22	64.7	80.2	-
	13:22 - 14:22	65.4	79.6	-
	14:22 - 15:22	68.0	91.9	-
	15:22 - 16:22	66.5	81.7	-
	16:22 - 17:22	62.1	78.7	-
	Equivalent Level 8 hrs (Leq 8 hrs)	66.5		90
	Maximum Level (Lmax)	91.9		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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