

ภาคผนวกที่ 4

ใบรายงานผลการวิเคราะห์จากห้องปฏิบัติการ


ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Sampling Source : Ambient Air Quality
Sampling Point : บริเวณบ้านพักมทท ตำบลบ้านควน อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0690803 E, 1613141 N
Sampling Date : August 15-22, 2022
Sampling Time : 10:55
Sampling Method : U.S. EPA 40 CFR Part 50
Sample Condition : Good
Sampling By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

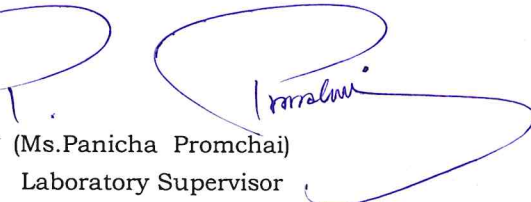
Analysis No. : AB1018/2565
Received Date : August 23, 2022
Analytical Date : August 23-31, 2022
Report Date : September 1, 2022

Parameter	Unit	Method of Analysis	Result							Standard ^{1/}
			Aug 15-16, 22	Aug 16-17, 22	Aug 17-18, 22	Aug 18-19, 22	Aug 19-20, 22	Aug 20-21, 22	Aug 21-22, 22	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	Hi-Volume, Gravimetric Method	0.033	0.030	0.035	0.039	0.037	0.054	0.036	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	PM10 Size Selective, Hi-Volume, Gravimetric Method	0.019	0.018	0.024	0.026	0.025	0.034	0.024	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).


(Ms. Natnicha Sermmatiwong)
Laboratory Reviewer




(Ms. Panicha Promchai)
Laboratory Supervisor


ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กที่ศรีดอน
Sampling Source : Ambient Air Quality
Sampling Point : บริเวณวิทยาลัยเทคนิคท่าหลวงซิเมนต์ไทยอนุสรณ์ ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0691052 E, 1611873 N
Sampling Date : August 15-22, 2022
Sampling Time : 10:25
Sampling Method : U.S. EPA 40 CFR Part 50
Sample Condition : Good
Sampling By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

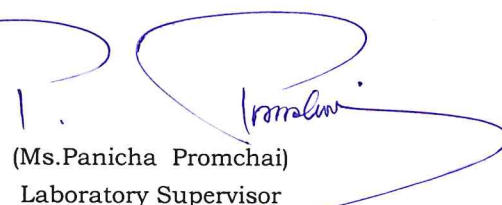
Analysis No. : AB1019/2565
Received Date : August 23, 2022
Analytical Date : August 23-31, 2022
Report Date : September 1, 2022

Parameter	Unit	Method of Analysis	Result								Standard ^{1/}
			Aug 15-16, 22	Aug 16-17, 22	Aug 17-18, 22	Aug 18-19, 22	Aug 19-20, 22	Aug 20-21, 22	Aug 21-22, 22		
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	Hi-Volume, Gravimetric Method	0.038	0.036	0.049	0.050	0.068	0.052	0.044	0.330	
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	PM10 Size Selective, Hi-Volume, Gravimetric Method	0.019	0.021	0.029	0.031	0.044	0.031	0.026	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).


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(Ms.Panicha Promchai)
Laboratory Supervisor


ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Sampling Source : Ambient Air Quality
Sampling Point : บริเวณชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอกำแพง จังหวัดพระนครศรีอยุธยา
GPS. Coordinate : UTM (WGS84) 47P 0688469 E, 1610943 N
Sampling Date : August 15-22, 2022
Sampling Time : 12:05
Sampling Method : U.S. EPA 40 CFR Part 50
Sample Condition : Good
Sampling By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.


Analysis No. : AB1020/2565
Received Date : August 23, 2022
Analytical Date : August 23-31, 2022
Report Date : September 1, 2022

Parameter	Unit	Method of Analysis	Result							Standard ^{1/}
			Aug 15-16, 22	Aug 16-17, 22	Aug 17-18, 22	Aug 18-19, 22	Aug 19-20, 22	Aug 20-21, 22	Aug 21-22, 22	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	Hi-Volume, Gravimetric Method	0.039	0.030	0.035	0.042	0.052	0.046	0.043	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	PM10 Size Selective, Hi-Volume, Gravimetric Method	0.024	0.017	0.022	0.027	0.031	0.026	0.024	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).


(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer




(Ms.Panicha Promchai)
Laboratory Supervisor


ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Sampling Source : Ambient Air Quality
Sampling Point : บริเวณชุมชนหมู่ที่ 9 ตำบลบ้านควี อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0689760 E, 1612139 N
Sampling Date : August 15-22, 2022
Sampling Time : 11:30
Sampling Method : U.S. EPA 40 CFR Part 50
Sample Condition : Good
Sampling By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.

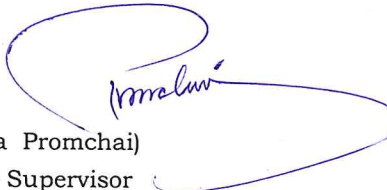
Analysis No. : AB1021/2565
Received Date : August 23, 2022
Analytical Date : August 23-31, 2022
Report Date : September 1, 2022

Parameter	Unit	Method of Analysis	Result							Standard ^{1/}
			Aug 16, 22	Aug 17, 22	Aug 18, 22	Aug 19, 22	Aug 20, 22	Aug 21, 22	Aug 22, 22	
Total Suspended Particulate (TSP) 24 Hours Average	mg/m ³	Hi-Volume, Gravimetric Method	0.073	0.094	0.100	0.088	0.130	0.127	0.093	0.330
Particulate Size Less Than 10 Micron (PM10) 24 Hours Average	mg/m ³	PM10 Size Selective, Hi-Volume, Gravimetric Method	0.045	0.060	0.066	0.056	0.078	0.082	0.062	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).


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(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT


Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กที่ศรีธรรมา
Measured Source : Ambient Air Quality
Measured Point : บริเวณบ้านพักมหาโลก ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0690803 E, 1613141 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : NOx Chemiluminescence Analyzer Horiba Model APNA-370 Serial Number FC2E28YU
Reported Number : ASA069-NO₂-2565 **Report Date** : September 2, 2022

Interval Time	Result NO ₂ (ppm)							Standard ^{1/}
	Aug 15-16, 22	Aug 16-17, 22	Aug 17-18, 22	Aug 18-19, 22	Aug 19-20, 22	Aug 20-21, 22	Aug 21-22, 22	
11:00 - 12:00	0.0091	0.0099	0.0105	0.0156	0.0089	0.0123	0.0099	
12:00 - 13:00	0.0092	0.0080	0.0083	0.0091	0.0076	0.0093	0.0077	
13:00 - 14:00	0.0083	0.0079	0.0152	0.0079	0.0073	0.0114	0.0072	
14:00 - 15:00	0.0086	0.0081	0.0105	0.0073	0.0070	0.0089	0.0073	
15:00 - 16:00	0.0087	0.0084	0.0093	0.0080	0.0087	0.0081	0.0076	
16:00 - 17:00	0.0103	0.0100	0.0106	0.0084	0.0087	0.0084	0.0097	
17:00 - 18:00	0.0143	0.0102	0.0090	0.0084	0.0101	0.0102	0.0099	
18:00 - 19:00	0.0108	0.0107	0.0114	0.0107	0.0114	0.0101	0.0087	
19:00 - 20:00	0.0136	0.0127	0.0148	0.0131	0.0123	0.0102	0.0116	
20:00 - 21:00	0.0119	0.0179	0.0154	0.0122	0.0125	0.0106	0.0149	
21:00 - 22:00	0.0093	0.0151	0.0167	0.0172	0.0108	0.0077	0.0129	
22:00 - 23:00	0.0115	0.0137	0.0193	0.0153	0.0132	0.0090	0.0125	
23:00 - 00:00	0.0096	0.0135	0.0217	0.0176	0.0149	0.0148	0.0136	
00:00 - 01:00	0.0083	0.0088	0.0142	0.0175	0.0127	0.0124	0.0130	
01:00 - 02:00	0.0092	0.0087	0.0136	0.0169	0.0140	0.0126	0.0129	
02:00 - 03:00	0.0087	0.0081	0.0142	0.0181	0.0169	0.0114	0.0135	
03:00 - 04:00	0.0084	0.0081	0.0135	0.0192	0.0178	0.0135	0.0114	
04:00 - 05:00	0.0099	0.0090	0.0113	0.0208	0.0145	0.0102	0.0163	
05:00 - 06:00	0.0104	0.0154	0.0116	0.0204	0.0097	0.0077	0.0161	
06:00 - 07:00	0.0120	0.0188	0.0112	0.0215	0.0087	0.0080	0.0166	
07:00 - 08:00	0.0138	0.0151	0.0166	0.0253	0.0102	0.0100	0.0137	
08:00 - 09:00	0.0178	0.0177	0.0175	0.0256	0.0111	0.0130	0.0150	
09:00 - 10:00	0.0174	0.0167	0.0165	0.0157	0.0123	0.0224	0.0117	
10:00 - 11:00	0.0127	0.0143	0.0200	0.0126	0.0131	0.0177	0.0236	
24 Hours Average	0.0110	0.0120	0.0139	0.0152	0.0114	0.0112	0.0124	-
1 Hour Maximum	0.0178	0.0188	0.0217	0.0256	0.0178	0.0224	0.0236	NO ₂ ≤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. Wassana Khunngoen)
Laboratory Reviewer




(Ms. Panicha Promchai)
Laboratory Supervisor


ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Measured Source : Ambient Air Quality
Measured Point : บริเวณบ้านพักมอโลก ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0690803 E, 1613141 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : SO₂ UV-Fluorescence Analyzer Thermo Model 43C Serial Number 64390-343/2
Reported Number : ASA069-SO₂-2565 **Report Date** : September 2, 2022


Interval Time	Result SO ₂ (ppm)							Standard
	Aug 15-16, 22	Aug 16-17, 22	Aug 17-18, 22	Aug 18-19, 22	Aug 19-20, 22	Aug 20-21, 22	Aug 21-22, 22	
11:00 - 12:00	0.0012	0.0015	0.0014	0.0016	0.0015	0.0015	0.0014	
12:00 - 13:00	0.0019	0.0015	0.0015	0.0014	0.0015	0.0013	0.0014	
13:00 - 14:00	0.0015	0.0015	0.0015	0.0015	0.0015	0.0014	0.0013	
14:00 - 15:00	0.0015	0.0015	0.0015	0.0016	0.0015	0.0014	0.0014	
15:00 - 16:00	0.0014	0.0015	0.0016	0.0015	0.0015	0.0014	0.0014	
16:00 - 17:00	0.0014	0.0014	0.0015	0.0015	0.0015	0.0014	0.0013	
17:00 - 18:00	0.0014	0.0015	0.0015	0.0015	0.0014	0.0015	0.0014	
18:00 - 19:00	0.0014	0.0014	0.0015	0.0016	0.0014	0.0014	0.0014	
19:00 - 20:00	0.0015	0.0015	0.0015	0.0013	0.0015	0.0014	0.0015	
20:00 - 21:00	0.0015	0.0015	0.0014	0.0015	0.0015	0.0014	0.0013	
21:00 - 22:00	0.0015	0.0015	0.0015	0.0016	0.0013	0.0013	0.0013	
22:00 - 23:00	0.0016	0.0015	0.0015	0.0015	0.0014	0.0014	0.0013	
23:00 - 00:00	0.0015	0.0014	0.0015	0.0014	0.0014	0.0013	0.0012	
00:00 - 01:00	0.0015	0.0015	0.0015	0.0015	0.0013	0.0014	0.0013	
01:00 - 02:00	0.0016	0.0014	0.0016	0.0015	0.0014	0.0013	0.0013	
02:00 - 03:00	0.0016	0.0016	0.0016	0.0014	0.0014	0.0014	0.0013	
03:00 - 04:00	0.0015	0.0014	0.0016	0.0015	0.0013	0.0013	0.0012	
04:00 - 05:00	0.0014	0.0014	0.0014	0.0014	0.0014	0.0013	0.0012	
05:00 - 06:00	0.0014	0.0016	0.0014	0.0015	0.0013	0.0014	0.0013	
06:00 - 07:00	0.0014	0.0014	0.0015	0.0014	0.0014	0.0013	0.0013	
07:00 - 08:00	0.0015	0.0015	0.0014	0.0016	0.0015	0.0014	0.0013	
08:00 - 09:00	0.0016	0.0016	0.0015	0.0016	0.0015	0.0013	0.0013	
09:00 - 10:00	0.0014	0.0016	0.0015	0.0015	0.0014	0.0014	0.0013	
10:00 - 11:00	0.0015	0.0016	0.0016	0.0014	0.0014	0.0014	0.0013	
24 Hours Average	0.0015	0.0015	0.0015	0.0015	0.0014	0.0014	0.0013	0.12^{1/}
1 Hour Maximum	0.0019	0.0016	0.0016	0.0016	0.0015	0.0015	0.0015	0.30^{2/}

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).

^{2/} Notification of National Environmental Board, No.12, B.E.2538 (1995), published in the Royal Government Gazette No.112 Special Part 27D dated July 13, B.E.2538 (1995) and Notification No.21, B.E.2544 (2001), published in the Royal Government Gazette No.118 Special Part 39D dated April 30, B.E.2544 (2001), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).


(Ms. Wassana Khunngoen)
Laboratory Reviewer




(Ms. Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

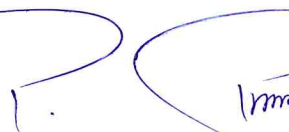
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Measured Source : Ambient Air Quality
Measured Point : บริเวณวิทยาลัยเทคนิคท่าหลวงซิเมนต์ไทยอนุสรณ์ ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0691052 E, 1611873 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : NOx Chemiluminescence Analyzer Horiba Model APNA-370 Serial Number KPACV8NA
Reported Number : ASA070-NO₂-2565 **Report Date** : September 2, 2022

Interval Time	Result NO ₂ (ppm)							Standard ^{1/}
	Aug 15-16, 22	Aug 16-17, 22	Aug 17-18, 22	Aug 18-19, 22	Aug 19-20, 22	Aug 20-21, 22	Aug 21-22, 22	
10:00 - 11:00	0.0060	0.0095	0.0138	0.0114	0.0133	0.0112	0.0081	
11:00 - 12:00	0.0097	0.0142	0.0136	0.0074	0.0115	0.0115	0.0081	
12:00 - 13:00	0.0086	0.0106	0.0154	0.0077	0.0142	0.0099	0.0084	
13:00 - 14:00	0.0086	0.0077	0.0180	0.0115	0.0136	0.0178	0.0094	
14:00 - 15:00	0.0108	0.0085	0.0154	0.0083	0.0121	0.0157	0.0168	
15:00 - 16:00	0.0145	0.0102	0.0133	0.0148	0.0095	0.0101	0.0096	
16:00 - 17:00	0.0136	0.0116	0.0147	0.0115	0.0116	0.0091	0.0091	
17:00 - 18:00	0.0195	0.0099	0.0183	0.0115	0.0127	0.0109	0.0172	
18:00 - 19:00	0.0165	0.0190	0.0208	0.0156	0.0163	0.0151	0.0172	
19:00 - 20:00	0.0108	0.0150	0.0203	0.0164	0.0167	0.0165	0.0137	
20:00 - 21:00	0.0121	0.0139	0.0215	0.0151	0.0166	0.0119	0.0161	
21:00 - 22:00	0.0140	0.0181	0.0220	0.0184	0.0107	0.0124	0.0162	
22:00 - 23:00	0.0118	0.0159	0.0183	0.0207	0.0120	0.0119	0.0171	
23:00 - 00:00	0.0109	0.0108	0.0091	0.0213	0.0156	0.0110	0.0164	
00:00 - 01:00	0.0128	0.0102	0.0074	0.0216	0.0157	0.0114	0.0167	
01:00 - 02:00	0.0108	0.0095	0.0083	0.0215	0.0160	0.0099	0.0169	
02:00 - 03:00	0.0122	0.0096	0.0110	0.0223	0.0149	0.0087	0.0146	
03:00 - 04:00	0.0141	0.0108	0.0118	0.0214	0.0129	0.0098	0.0187	
04:00 - 05:00	0.0166	0.0170	0.0126	0.0202	0.0099	0.0116	0.0188	
05:00 - 06:00	0.0181	0.0183	0.0145	0.0200	0.0101	0.0113	0.0186	
06:00 - 07:00	0.0187	0.0165	0.0152	0.0185	0.0119	0.0121	0.0148	
07:00 - 08:00	0.0163	0.0151	0.0148	0.0153	0.0109	0.0116	0.0130	
08:00 - 09:00	0.0126	0.0147	0.0133	0.0106	0.0101	0.0107	0.0134	
09:00 - 10:00	0.0093	0.0159	0.0116	0.0100	0.0109	0.0098	0.0120	
24 Hours Average	0.0129	0.0130	0.0148	0.0155	0.0129	0.0117	0.0142	-
1 Hour Maximum	0.0195	0.0190	0.0220	0.0223	0.0167	0.0178	0.0188	NO ₂ ≤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. Wassana Khunngoen)
Laboratory Reviewer





(Ms. Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กที่ศรีตรัง
Measured Source : Ambient Air Quality
Measured Point : บริเวณวิทยาลัยเทคนิคท่าหลวงซิเมนต์ไทยอนุสรณ์ ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0691052 E, 1611873 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : SO₂ UV-Fluorescence Analyzer Horiba Model APSA-370 Serial Number 12E8X34P
Reported Number : ASA070-SO₂-2565 **Report Date** : September 2, 2022

Interval Time	Result SO ₂ (ppm)							Standard
	Aug 15-16, 22	Aug 16-17, 22	Aug 17-18, 22	Aug 18-19, 22	Aug 19-20, 22	Aug 20-21, 22	Aug 21-22, 22	
10:00 - 11:00	0.0013	0.0020	0.0026	0.0025	0.0020	0.0020	0.0021	
11:00 - 12:00	0.0012	0.0020	0.0025	0.0020	0.0017	0.0022	0.0018	
12:00 - 13:00	0.0012	0.0020	0.0020	0.0018	0.0016	0.0020	0.0016	
13:00 - 14:00	0.0013	0.0017	0.0015	0.0016	0.0018	0.0020	0.0015	
14:00 - 15:00	0.0012	0.0014	0.0015	0.0015	0.0022	0.0030	0.0018	
15:00 - 16:00	0.0011	0.0013	0.0016	0.0015	0.0030	0.0026	0.0014	
16:00 - 17:00	0.0011	0.0013	0.0016	0.0015	0.0026	0.0027	0.0014	
17:00 - 18:00	0.0012	0.0013	0.0015	0.0016	0.0024	0.0016	0.0014	
18:00 - 19:00	0.0013	0.0016	0.0013	0.0014	0.0025	0.0013	0.0013	
19:00 - 20:00	0.0011	0.0014	0.0013	0.0014	0.0019	0.0014	0.0014	
20:00 - 21:00	0.0011	0.0012	0.0013	0.0014	0.0014	0.0012	0.0015	
21:00 - 22:00	0.0013	0.0013	0.0014	0.0015	0.0013	0.0012	0.0014	
22:00 - 23:00	0.0014	0.0015	0.0014	0.0015	0.0012	0.0012	0.0015	
23:00 - 00:00	0.0015	0.0014	0.0014	0.0015	0.0013	0.0012	0.0015	
00:00 - 01:00	0.0014	0.0014	0.0013	0.0015	0.0012	0.0013	0.0014	
01:00 - 02:00	0.0015	0.0014	0.0013	0.0015	0.0013	0.0014	0.0013	
02:00 - 03:00	0.0015	0.0013	0.0014	0.0015	0.0013	0.0015	0.0013	
03:00 - 04:00	0.0015	0.0013	0.0015	0.0015	0.0012	0.0015	0.0015	
04:00 - 05:00	0.0014	0.0017	0.0016	0.0015	0.0013	0.0015	0.0016	
05:00 - 06:00	0.0014	0.0021	0.0014	0.0016	0.0014	0.0015	0.0017	
06:00 - 07:00	0.0014	0.0020	0.0016	0.0016	0.0014	0.0014	0.0016	
07:00 - 08:00	0.0015	0.0030	0.0022	0.0022	0.0014	0.0016	0.0023	
08:00 - 09:00	0.0017	0.0034	0.0028	0.0025	0.0016	0.0018	0.0024	
09:00 - 10:00	0.0020	0.0028	0.0026	0.0023	0.0018	0.0021	0.0022	
24 Hours Average	0.0014	0.0017	0.0017	0.0017	0.0017	0.0017	0.0016	0.12^{1/}
1 Hour Maximum	0.0020	0.0034	0.0028	0.0025	0.0030	0.0030	0.0024	0.30^{2/}

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).
^{2/} Notification of National Environmental Board, No.12, B.E.2538 (1995), published in the Royal Government Gazette No.112 Special Part 27D dated July 13, B.E.2538 (1995) and Notification No.21, B.E.2544 (2001), published in the Royal Government Gazette No.118 Special Part 39D dated April 30, B.E.2544 (2001), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).


(Ms.Wassana Khunngoen)
Laboratory Reviewer




(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

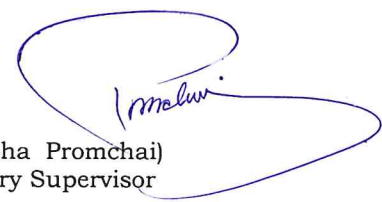
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีดอน
Measured Source : Ambient Air Quality
Measured Point : บริเวณชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอนาทวี จังหวัดนครศรีธรรมราช
GPS. Coordinate : UTM (WGS84) 47P 0688469 E, 1610943 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : NOx Chemiluminescence Analyzer Horiba Model APNA-370 Serial Number XPWS7U3L
Reported Number : ASA071-NO₂-2565 **Report Date** : September 2, 2022

Interval Time	Result NO ₂ (ppm)							Standard ^{1/}
	Aug 15-16, 22	Aug 16-17, 22	Aug 17-18, 22	Aug 18-19, 22	Aug 19-20, 22	Aug 20-21, 22	Aug 21-22, 22	
12:00 - 13:00	0.0135	0.0132	0.0142	0.0141	0.0138	0.0137	0.0130	
13:00 - 14:00	0.0128	0.0131	0.0155	0.0136	0.0136	0.0138	0.0131	
14:00 - 15:00	0.0116	0.0135	0.0147	0.0133	0.0151	0.0136	0.0134	
15:00 - 16:00	0.0127	0.0130	0.0145	0.0132	0.0142	0.0136	0.0133	
16:00 - 17:00	0.0127	0.0132	0.0146	0.0134	0.0141	0.0135	0.0130	
17:00 - 18:00	0.0118	0.0130	0.0146	0.0138	0.0146	0.0136	0.0130	
18:00 - 19:00	0.0123	0.0153	0.0148	0.0139	0.0148	0.0132	0.0131	
19:00 - 20:00	0.0129	0.0149	0.0155	0.0166	0.0136	0.0099	0.0136	
20:00 - 21:00	0.0124	0.0131	0.0149	0.0152	0.0137	0.0131	0.0149	
21:00 - 22:00	0.0123	0.0133	0.0154	0.0143	0.0132	0.0124	0.0153	
22:00 - 23:00	0.0126	0.0140	0.0160	0.0158	0.0130	0.0126	0.0151	
23:00 - 00:00	0.0124	0.0145	0.0165	0.0171	0.0134	0.0131	0.0165	
00:00 - 01:00	0.0125	0.0143	0.0137	0.0172	0.0151	0.0130	0.0167	
01:00 - 02:00	0.0132	0.0141	0.0130	0.0176	0.0148	0.0132	0.0155	
02:00 - 03:00	0.0129	0.0128	0.0128	0.0175	0.0159	0.0125	0.0159	
03:00 - 04:00	0.0122	0.0127	0.0126	0.0178	0.0156	0.0124	0.0146	
04:00 - 05:00	0.0130	0.0130	0.0130	0.0184	0.0150	0.0122	0.0155	
05:00 - 06:00	0.0135	0.0143	0.0129	0.0186	0.0133	0.0123	0.0169	
06:00 - 07:00	0.0146	0.0134	0.0137	0.0186	0.0130	0.0124	0.0166	
07:00 - 08:00	0.0149	0.0137	0.0150	0.0187	0.0131	0.0130	0.0159	
08:00 - 09:00	0.0146	0.0139	0.0153	0.0177	0.0134	0.0139	0.0152	
09:00 - 10:00	0.0142	0.0143	0.0154	0.0149	0.0135	0.0141	0.0151	
10:00 - 11:00	0.0135	0.0146	0.0154	0.0148	0.0135	0.0138	0.0160	
11:00 - 12:00	0.0134	0.0142	0.0146	0.0141	0.0136	0.0134	0.0150	
24 Hours Average	0.0130	0.0137	0.0145	0.0158	0.0140	0.0130	0.0148	-
1 Hour Maximum	0.0149	0.0153	0.0165	0.0187	0.0159	0.0141	0.0169	NO ₂ ≤ 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.Wassana Khunngoen)
Laboratory Reviewer




(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กที่ร้อน
Measured Source : Ambient Air Quality
Measured Point : บริเวณชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอนาทรี จังหวัดพระนครศรีอยุธยา
GPS. Coordinate : UTM (WGS84) 47P 0688469 E, 1610943 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : SO₂ UV-Fluorescence Analyzer Horiba Model APSA-370 Serial Number G5XCFUN6
Reported Number : ASA071-SO₂-2565 **Report Date** : September 2, 2022


Interval Time	Result SO ₂ (ppm)							Standard
	Aug 15-16, 22	Aug 16-17, 22	Aug 17-18, 22	Aug 18-19, 22	Aug 19-20, 22	Aug 20-21, 22	Aug 21-22, 22	
12:00 - 13:00	0.0022	0.0013	0.0015	0.0017	0.0015	0.0017	0.0017	
13:00 - 14:00	0.0022	0.0013	0.0015	0.0017	0.0015	0.0016	0.0016	
14:00 - 15:00	0.0019	0.0013	0.0014	0.0015	0.0016	0.0016	0.0017	
15:00 - 16:00	0.0018	0.0013	0.0015	0.0014	0.0015	0.0017	0.0016	
16:00 - 17:00	0.0019	0.0014	0.0015	0.0014	0.0015	0.0018	0.0017	
17:00 - 18:00	0.0018	0.0013	0.0015	0.0013	0.0016	0.0017	0.0016	
18:00 - 19:00	0.0019	0.0014	0.0016	0.0013	0.0016	0.0017	0.0016	
19:00 - 20:00	0.0018	0.0014	0.0016	0.0013	0.0014	0.0015	0.0017	
20:00 - 21:00	0.0017	0.0014	0.0016	0.0013	0.0014	0.0017	0.0018	
21:00 - 22:00	0.0016	0.0014	0.0016	0.0013	0.0014	0.0017	0.0019	
22:00 - 23:00	0.0015	0.0014	0.0016	0.0014	0.0014	0.0017	0.0019	
23:00 - 00:00	0.0016	0.0015	0.0016	0.0014	0.0015	0.0017	0.0018	
00:00 - 01:00	0.0016	0.0015	0.0015	0.0015	0.0016	0.0017	0.0018	
01:00 - 02:00	0.0017	0.0016	0.0016	0.0016	0.0016	0.0017	0.0019	
02:00 - 03:00	0.0017	0.0015	0.0016	0.0015	0.0016	0.0017	0.0019	
03:00 - 04:00	0.0016	0.0014	0.0016	0.0017	0.0017	0.0017	0.0019	
04:00 - 05:00	0.0016	0.0014	0.0016	0.0017	0.0017	0.0018	0.0019	
05:00 - 06:00	0.0017	0.0013	0.0016	0.0016	0.0017	0.0017	0.0019	
06:00 - 07:00	0.0018	0.0014	0.0017	0.0018	0.0018	0.0018	0.0019	
07:00 - 08:00	0.0017	0.0014	0.0019	0.0017	0.0017	0.0018	0.0020	
08:00 - 09:00	0.0018	0.0015	0.0019	0.0018	0.0017	0.0019	0.0021	
09:00 - 10:00	0.0017	0.0015	0.0020	0.0016	0.0018	0.0018	0.0020	
10:00 - 11:00	0.0016	0.0016	0.0019	0.0016	0.0017	0.0017	0.0019	
11:00 - 12:00	0.0016	0.0016	0.0018	0.0016	0.0016	0.0017	0.0018	
24 Hours Average	0.0018	0.0014	0.0016	0.0015	0.0016	0.0017	0.0018	0.12^{1/}
1 Hour Maximum	0.0022	0.0016	0.0020	0.0018	0.0018	0.0019	0.0021	0.30^{2/}

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).

^{2/} Notification of National Environmental Board, No.12, B.E.2538 (1995), published in the Royal Government Gazette No.112 Special Part 27D dated July 13, B.E.2538 (1995) and Notification No.21, B.E.2544 (2001), published in the Royal Government Gazette No.118 Special Part 39D dated April 30, B.E.2544 (2001), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).


(Ms.Wassana Khunngoen)
Laboratory Reviewer



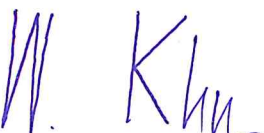

(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

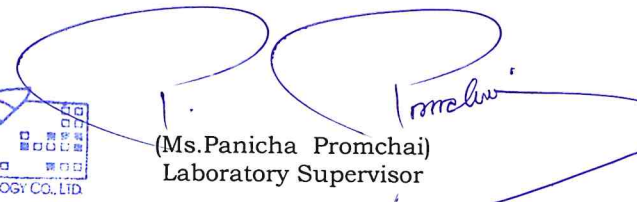
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กที่ร้อน
Measured Source : Ambient Air Quality
Measured Point : บริเวณชุมชนหมู่ที่ 9 ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0689760 E, 1612139 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : NOx Chemiluminescence Analyzer Horiba Model APNA-370 Serial Number M4286P23
Reported Number : ASA072-NO₂-2565 **Report Date** : September 2, 2022

Interval Time	Result NO ₂ (ppm)							Standard ^{1/}
	Aug 15-16, 22	Aug 16-17, 22	Aug 17-18, 22	Aug 18-19, 22	Aug 19-20, 22	Aug 20-21, 22	Aug 21-22, 22	
12:00 - 13:00	0.0028	0.0081	0.0111	0.0094	0.0067	0.0101	0.0102	
13:00 - 14:00	0.0064	0.0124	0.0176	0.0095	0.0087	0.0092	0.0091	
14:00 - 15:00	0.0066	0.0252	0.0154	0.0096	0.0086	0.0088	0.0099	
15:00 - 16:00	0.0072	0.0109	0.0153	0.0100	0.0087	0.0084	0.0106	
16:00 - 17:00	0.0086	0.0101	0.0152	0.0111	0.0090	0.0088	0.0123	
17:00 - 18:00	0.0121	0.0100	0.0176	0.0110	0.0093	0.0099	0.0117	
18:00 - 19:00	0.0149	0.0100	0.0208	0.0146	0.0097	0.0101	0.0122	
19:00 - 20:00	0.0127	0.0096	0.0168	0.0136	0.0089	0.0199	0.0151	
20:00 - 21:00	0.0117	0.0105	0.0168	0.0142	0.0088	0.0148	0.0205	
21:00 - 22:00	0.0098	0.0130	0.0168	0.0138	0.0102	0.0112	0.0174	
22:00 - 23:00	0.0098	0.0154	0.0148	0.0125	0.0090	0.0119	0.0136	
23:00 - 00:00	0.0090	0.0136	0.0143	0.0125	0.0108	0.0120	0.0141	
00:00 - 01:00	0.0088	0.0114	0.0099	0.0125	0.0108	0.0096	0.0142	
01:00 - 02:00	0.0081	0.0109	0.0089	0.0120	0.0103	0.0096	0.0137	
02:00 - 03:00	0.0086	0.0108	0.0081	0.0126	0.0102	0.0091	0.0141	
03:00 - 04:00	0.0079	0.0123	0.0085	0.0123	0.0101	0.0104	0.0122	
04:00 - 05:00	0.0100	0.0110	0.0098	0.0117	0.0096	0.0115	0.0123	
05:00 - 06:00	0.0107	0.0123	0.0116	0.0097	0.0087	0.0101	0.0130	
06:00 - 07:00	0.0117	0.0099	0.0093	0.0094	0.0080	0.0090	0.0128	
07:00 - 08:00	0.0120	0.0108	0.0091	0.0094	0.0077	0.0090	0.0120	
08:00 - 09:00	0.0111	0.0109	0.0092	0.0096	0.0078	0.0101	0.0107	
09:00 - 10:00	0.0085	0.0112	0.0105	0.0095	0.0084	0.0118	0.0114	
10:00 - 11:00	0.0066	0.0136	0.0114	0.0104	0.0098	0.0103	0.0128	
11:00 - 12:00	0.0067	0.0141	0.0098	0.0106	0.0094	0.0101	0.0131	
24 Hours Average	0.0093	0.0120	0.0129	0.0113	0.0091	0.0107	0.0129	-
1 Hour Maximum	0.0149	0.0252	0.0208	0.0146	0.0108	0.0199	0.0205	NO₂ ≤ 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. Wassana Khunngoen)
Laboratory Reviewer




(Ms. Panicha Promchai)
Laboratory Supervisor


ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Measured Source : Ambient Air Quality
Measured Point : บริเวณชุมชนหมู่ที่ 9 ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0689760 E, 1612139 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Measured Instrument : SO₂ UV-Fluorescence Analyzer Horiba Model APSA-370 Serial Number X7L602W6
Reported Number : ASA072-SO₂-2565 **Report Date** : September 2, 2022

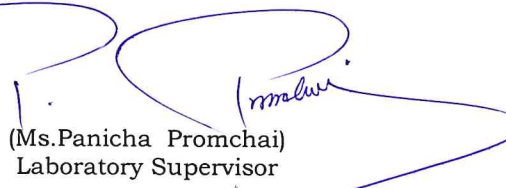
Interval Time	Result SO ₂ (ppm)							Standard
	Aug 15-16, 22	Aug 16-17, 22	Aug 17-18, 22	Aug 18-19, 22	Aug 19-20, 22	Aug 20-21, 22	Aug 21-22, 22	
12:00 - 13:00	0.0015	0.0019	0.0022	0.0015	0.0017	0.0016	0.0012	
13:00 - 14:00	0.0015	0.0018	0.0017	0.0015	0.0014	0.0019	0.0012	
14:00 - 15:00	0.0015	0.0018	0.0018	0.0016	0.0014	0.0019	0.0012	
15:00 - 16:00	0.0015	0.0018	0.0017	0.0017	0.0014	0.0019	0.0012	
16:00 - 17:00	0.0015	0.0018	0.0017	0.0016	0.0013	0.0015	0.0014	
17:00 - 18:00	0.0015	0.0018	0.0018	0.0016	0.0011	0.0013	0.0012	
18:00 - 19:00	0.0014	0.0016	0.0016	0.0015	0.0012	0.0015	0.0012	
19:00 - 20:00	0.0014	0.0017	0.0019	0.0016	0.0013	0.0014	0.0015	
20:00 - 21:00	0.0015	0.0018	0.0020	0.0017	0.0014	0.0014	0.0017	
21:00 - 22:00	0.0015	0.0017	0.0016	0.0017	0.0015	0.0016	0.0017	
22:00 - 23:00	0.0015	0.0018	0.0017	0.0014	0.0015	0.0017	0.0017	
23:00 - 00:00	0.0016	0.0018	0.0018	0.0016	0.0015	0.0015	0.0018	
00:00 - 01:00	0.0016	0.0018	0.0017	0.0016	0.0017	0.0018	0.0021	
01:00 - 02:00	0.0016	0.0018	0.0016	0.0016	0.0019	0.0021	0.0022	
02:00 - 03:00	0.0016	0.0019	0.0017	0.0016	0.0018	0.0019	0.0022	
03:00 - 04:00	0.0017	0.0018	0.0018	0.0016	0.0018	0.0018	0.0023	
04:00 - 05:00	0.0016	0.0017	0.0017	0.0015	0.0018	0.0016	0.0024	
05:00 - 06:00	0.0015	0.0018	0.0015	0.0015	0.0016	0.0017	0.0019	
06:00 - 07:00	0.0015	0.0019	0.0016	0.0015	0.0017	0.0020	0.0019	
07:00 - 08:00	0.0016	0.0021	0.0016	0.0016	0.0016	0.0018	0.0019	
08:00 - 09:00	0.0016	0.0020	0.0015	0.0021	0.0016	0.0017	0.0020	
09:00 - 10:00	0.0018	0.0020	0.0015	0.0019	0.0018	0.0019	0.0022	
10:00 - 11:00	0.0015	0.0016	0.0019	0.0018	0.0018	0.0021	0.0020	
11:00 - 12:00	0.0016	0.0018	0.0017	0.0014	0.0016	0.0017	0.0018	
24 Hours Average	0.0015	0.0018	0.0017	0.0016	0.0016	0.0017	0.0017	0.12^{1/}
1 Hour Maximum	0.0018	0.0021	0.0022	0.0021	0.0019	0.0021	0.0024	0.30^{2/}

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).

^{2/} Notification of National Environmental Board, No.12, B.E.2538 (1995), published in the Royal Government Gazette No.112 Special Part 27D dated July 13, B.E.2538 (1995) and Notification No.21, B.E.2544 (2001), published in the Royal Government Gazette No.118 Special Part 39D dated April 30, B.E.2544 (2001), under the Enhancement and Conservation of National Environmental Quality Act B.E.2535 (1992).


(Ms.Wassana Khunngoen)
Laboratory Reviewer




(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

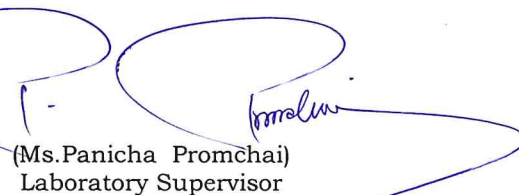
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Point : บริเวณบ้านพักมหาชน ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0690802 E, 1613163 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Reported Number : WDA057/2565

Date	Aug 15-16, 22		Aug 16-17, 22		Aug 17-18, 22		Aug 18-19, 22		Aug 19-20, 22		Aug 20-21, 22		Aug 21-22, 22	
Time	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
11:00 - 12:00	0.4	SSE	0.9	SW	1.8	SE	1.3	SSE	0.9	SSW	0.9	E	1.8	SSE
12:00 - 13:00	0.4	SSE	0.4	WNW	1.8	SE	1.3	SW	0.9	S	1.3	ESE	1.3	SSE
13:00 - 14:00	0.4	WNW	0.4	W	1.8	ESE	0.9	SSE	1.3	SSW	0.4	SW	1.3	S
14:00 - 15:00	0.9	SW	1.3	SSE	1.8	SE	1.3	SSW	0.9	SSE	0.4	S	1.3	SSE
15:00 - 16:00	0.4	WNW	1.3	SSE	1.8	SE	0.9	SSE	0.9	WSW	0.4	SW	1.3	SSW
16:00 - 17:00	0.4	SW	1.3	SSE	1.8	SE	0.9	WSW	0.9	WNW	0.4	W	1.8	SSE
17:00 - 18:00	0.9	SE	0.4	S	1.8	SE	0.9	SSE	0.4	WSW	0.4	SSW	1.8	SSE
18:00 - 19:00	0.4	NE	0.9	SSE	1.8	SE	0.4	S	<0.4	Calm	0.4	SSW	1.8	S
19:00 - 20:00	0.9	NE	<0.4	Calm	1.3	ESE	<0.4	Calm	<0.4	Calm	0.9	SE	2.2	SE
20:00 - 21:00	0.9	SSE	0.4	SW	0.9	SE	0.4	SW	<0.4	Calm	1.3	SSE	1.8	SSE
21:00 - 22:00	1.3	E	1.3	SSE	0.9	SE	0.9	S	1.8	S	0.4	SE	1.3	SSE
22:00 - 23:00	1.8	SE	1.3	SE	0.9	SE	0.9	ESE	1.3	SSE	0.4	SE	0.9	SSE
23:00 - 00:00	1.8	ESE	2.2	SE	0.9	SSE	1.3	ESE	0.9	SSE	0.9	SSE	0.9	SE
00:00 - 01:00	0.4	E	1.8	SE	1.3	SSE	<0.4	Calm	<0.4	Calm	0.9	SSE	0.9	SSE
01:00 - 02:00	0.4	ESE	1.8	SE	1.3	S	<0.4	Calm	<0.4	Calm	0.9	SSE	0.4	SSE
02:00 - 03:00	0.4	ESE	1.8	SE	0.9	SSE	<0.4	Calm	<0.4	Calm	1.3	SSE	0.9	SE
03:00 - 04:00	0.4	ESE	0.9	E	0.9	ESE	<0.4	Calm	<0.4	Calm	1.3	SSE	0.9	ESE
04:00 - 05:00	0.4	ESE	0.9	ESE	0.9	SSE	<0.4	Calm	<0.4	Calm	0.9	ESE	0.9	ESE
05:00 - 06:00	0.4	ESE	1.3	SE	0.9	SSE	<0.4	Calm	<0.4	Calm	0.4	ESE	0.4	ESE
06:00 - 07:00	<0.4	Calm	1.3	SE	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	ESE
07:00 - 08:00	<0.4	Calm	1.3	SE	<0.4	Calm	0.4	SE	<0.4	Calm	0.4	ESE	0.4	E
08:00 - 09:00	<0.4	Calm	1.8	SE	0.9	SE	0.9	SE	<0.4	Calm	0.9	ESE	1.8	ESE
09:00 - 10:00	0.4	ESE	2.2	SE	1.8	SE	1.3	SSE	0.4	SE	1.8	SSE	1.8	SSE
10:00 - 11:00	0.9	SSW	2.2	SE	1.3	SSE	1.3	SSE	0.9	SE	1.8	SSE	1.8	SSE

Remark : 1. WS = Wind Speed (m/s)
2. WD = Wind Direction
3. Height of wind vane and anemometer above ground 10 meters.


(Ms. Wassana Khunngoen)
Laboratory Reviewer




(Ms. Panicha Promchai)
Laboratory Supervisor

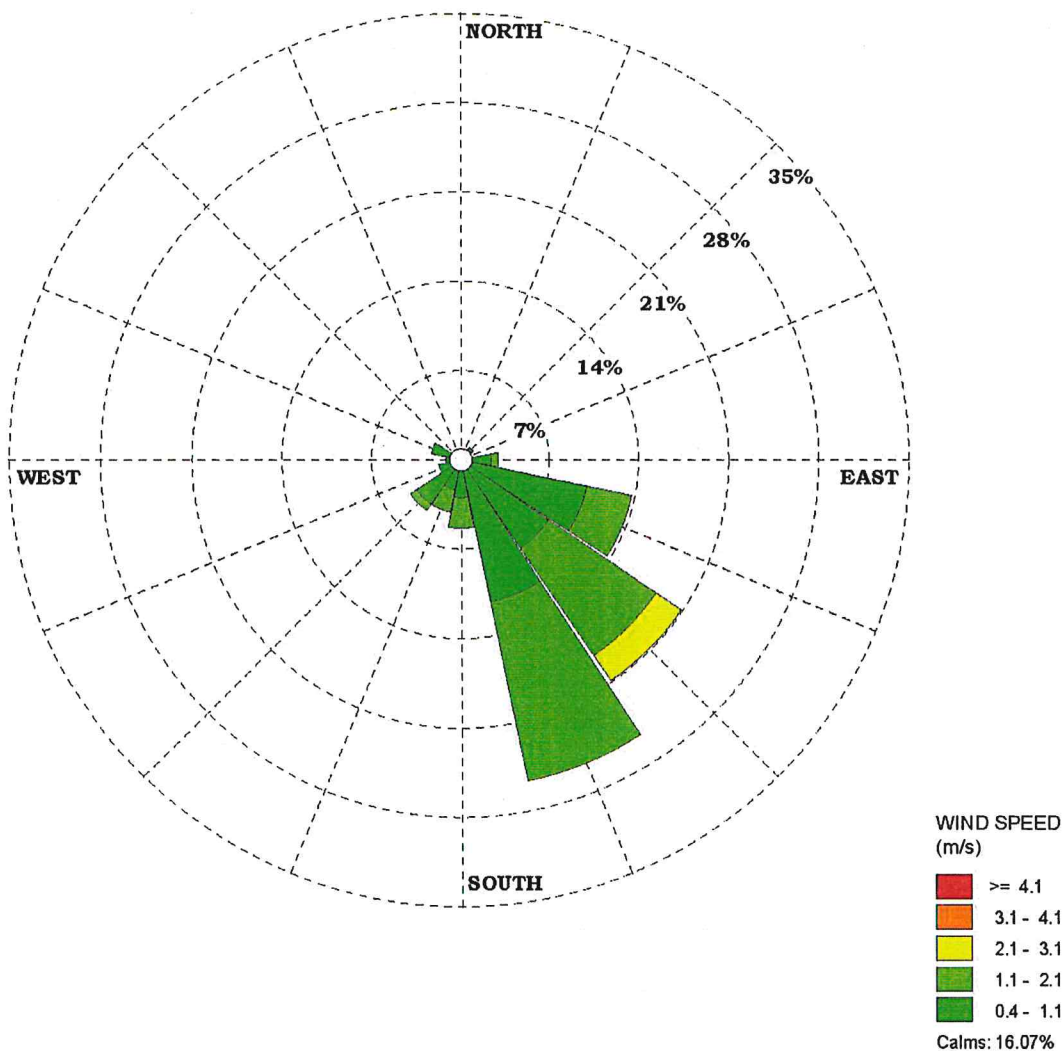
ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Point : บริเวณบ้านพักมหาโลก ตำบลบ้านควี อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0690802 E, 1613163 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Reported Number : WDA057/2565

Wind Direction	Percentage frequency of wind in each speed and direction					Total
	0.4-1.1	1.1-2.1	2.1-3.1	3.1-4.1	≥4.1	
N	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NNE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NE	1.19048	0.00000	0.00000	0.00000	0.00000	1.19048
ENE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E	2.38095	0.59524	0.00000	0.00000	0.00000	2.97619
ESE	10.11900	3.57143	0.00000	0.00000	0.00000	13.69043
SE	8.33333	10.11900	2.38095	0.00000	0.00000	20.83328
SSE	11.30950	14.28570	0.00000	0.00000	0.00000	25.59520
S	2.97619	2.38095	0.00000	0.00000	0.00000	5.35714
SSW	2.38095	1.78571	0.00000	0.00000	0.00000	4.16666
SW	4.16667	0.59524	0.00000	0.00000	0.00000	4.76191
WSW	1.78571	0.00000	0.00000	0.00000	0.00000	1.78571
W	1.19048	0.00000	0.00000	0.00000	0.00000	1.19048
WNW	2.38095	0.00000	0.00000	0.00000	0.00000	2.38095
NW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NNW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Calm	16.07140					

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Point : บริเวณบ้านพักมหาโลก ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
Measured Date : August 15-22, 2022
Reported Number : WDA057/2565

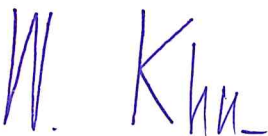


ANALYSIS REPORT

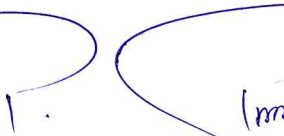
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Point : บริเวณวิทยาลัยเทคนิคท่าหลวงซิเมนต์ไทยอุษรณ ตำบลบ้านควัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0691059 E, 1611871 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Reported Number : WDA058/2565

Date	Aug 15-16, 22		Aug 16-17, 22		Aug 17-18, 22		Aug 18-19, 22		Aug 19-20, 22		Aug 20-21, 22		Aug 21-22, 22	
Time	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
11:00 - 12:00	1.3	W	0.9	SSW	1.3	ESE	1.3	SW	2.2	WSW	0.9	ESE	2.2	SW
12:00 - 13:00	1.3	W	1.3	W	1.3	ESE	1.8	SSW	1.8	WSW	0.9	ESE	1.8	WSW
13:00 - 14:00	1.3	W	1.8	WSW	1.3	ESE	2.2	WSW	2.2	WSW	0.4	WSW	2.2	W
14:00 - 15:00	1.8	W	1.8	W	1.3	ESE	2.2	WSW	1.8	W	0.4	WSW	2.2	WSW
15:00 - 16:00	1.8	W	1.8	W	1.8	ESE	1.8	SW	2.2	W	1.3	W	2.7	WSW
16:00 - 17:00	2.2	W	1.3	WSW	0.9	ESE	1.8	W	1.8	W	0.4	SSW	1.8	WSW
17:00 - 18:00	0.9	ESE	0.9	SW	1.3	ESE	1.3	SW	1.8	W	0.9	SSW	1.8	WSW
18:00 - 19:00	0.4	ENE	1.8	WSW	0.9	ESE	1.3	SW	0.9	W	0.4	SSE	3.1	WSW
19:00 - 20:00	1.3	ESE	0.9	W	0.9	ESE	<0.4	Calm	<0.4	Calm	0.4	S	1.3	WSW
20:00 - 21:00	0.9	ESE	<0.4	Calm	0.4	SE	1.3	WSW	<0.4	Calm	1.3	WSW	0.9	SE
21:00 - 22:00	0.9	ESE	0.4	S	0.9	ESE	0.4	SW	2.7	WSW	0.4	ESE	0.9	SE
22:00 - 23:00	1.3	ESE	0.9	ESE	<0.4	Calm	0.4	SE	1.3	WSW	<0.4	Calm	0.9	ESE
23:00 - 00:00	1.3	ESE	1.3	ESE	0.9	SSW	0.4	SE	0.4	SSE	0.4	S	0.9	ESE
00:00 - 01:00	0.9	SE	1.3	ESE	0.9	WSW	<0.4	Calm	0.4	ESE	<0.4	Calm	0.4	ESE
01:00 - 02:00	0.9	NNE	1.3	ESE	0.9	WSW	<0.4	Calm	<0.4	Calm	0.4	SSW	<0.4	Calm
02:00 - 03:00	0.4	SE	1.3	ESE	0.4	S	<0.4	Calm	0.4	ESE	0.4	SW	0.4	ESE
03:00 - 04:00	0.4	SE	0.9	ESE	<0.4	Calm	0.4	ESE	0.4	ESE	0.4	SSW	0.9	ESE
04:00 - 05:00	0.4	ESE	0.4	ESE	<0.4	Calm	<0.4	Calm	0.4	ESE	<0.4	Calm	0.4	ESE
05:00 - 06:00	0.4	ESE	0.9	ESE	0.4	ESE	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	ESE
06:00 - 07:00	0.4	ESE	0.4	ESE	0.4	SE	<0.4	Calm	<0.4	Calm	0.4	ESE	0.9	ESE
07:00 - 08:00	0.4	ESE	0.9	ESE	0.4	SE	<0.4	Calm	0.4	ESE	0.9	ESE	0.9	ESE
08:00 - 09:00	<0.4	Calm	0.9	ESE	0.4	ESE	0.4	SE	0.4	ESE	0.4	SSE	0.9	ESE
09:00 - 10:00	0.4	ESE	1.3	ESE	0.9	ESE	1.3	SW	0.4	SE	0.9	SE	1.3	ESE
10:00 - 11:00	1.3	WSW	1.3	SE	1.3	SSW	1.3	W	0.4	SE	1.3	SSW	1.3	ESE

Remark : 1. WS = Wind Speed (m/s)
2. WD = Wind Direction
3. Height of wind vane and anemometer above ground 10 meters.


(Ms. Wassana Khunngoen)
Laboratory Reviewer




(Ms. Panicha Promchai)
Laboratory Supervisor

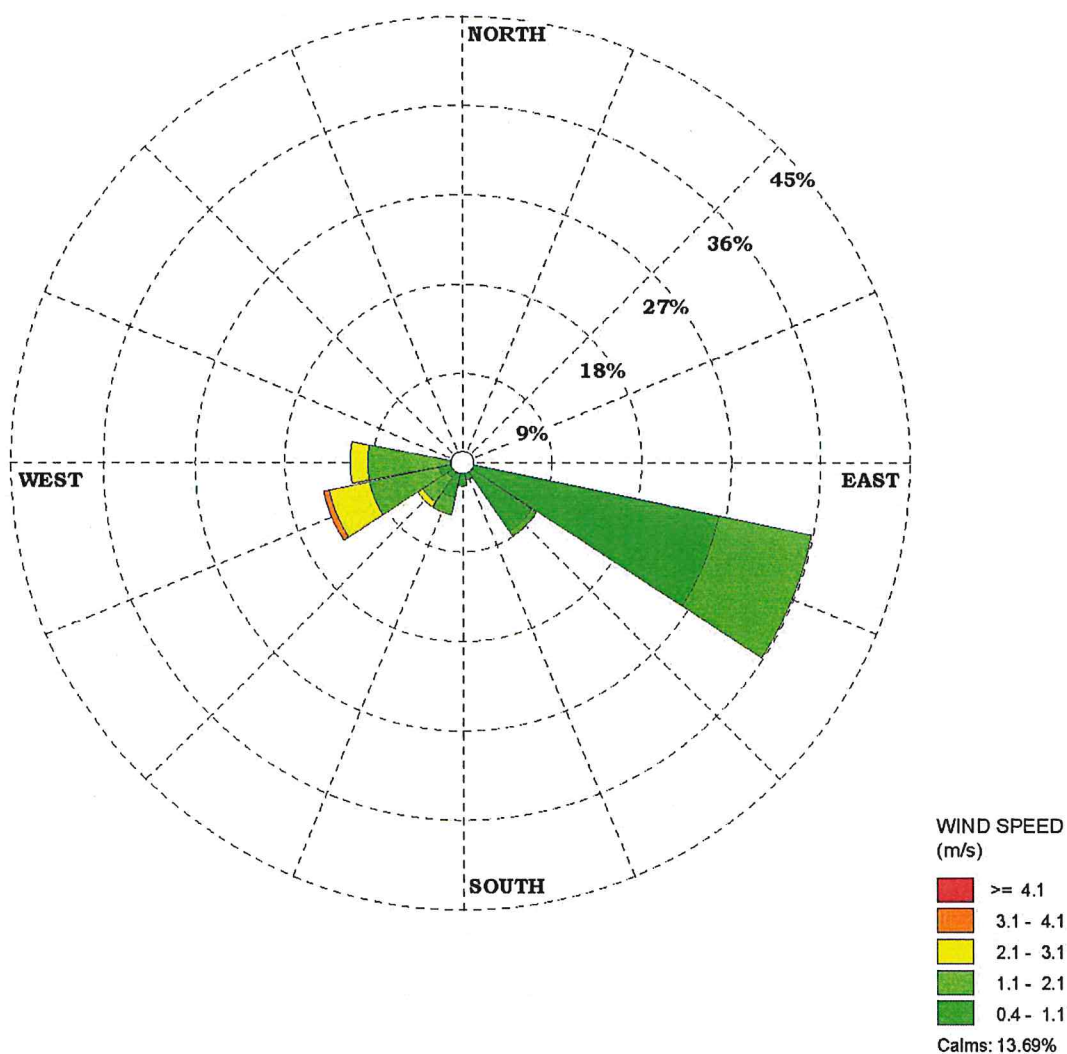
ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Measured Point : บริเวณวิทยาลัยเทคนิคท่าหลวงซิเมนต์ไทยอนุสรณ์ ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0691059 E, 1611871 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Reported Number : WDA058/2565

Wind Direction	Percentage frequency of wind in each speed and direction					Total
	0.4-1.1	1.1-2.1	2.1-3.1	3.1-4.1	≥4.1	
N	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NNE	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
NE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
ENE	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
E	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
ESE	26.19050	9.52381	0.00000	0.00000	0.00000	35.71431
SE	8.33333	0.59524	0.00000	0.00000	0.00000	8.92857
SSE	1.78571	0.00000	0.00000	0.00000	0.00000	1.78571
S	2.38095	0.00000	0.00000	0.00000	0.00000	2.38095
SSW	3.57143	1.78571	0.00000	0.00000	0.00000	5.35714
SW	1.78571	2.97619	0.59524	0.00000	0.00000	5.35714
WSW	2.38095	7.14286	4.16667	0.59524	0.00000	14.28572
W	1.19048	8.33333	1.78571	0.00000	0.00000	11.30952
WNW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NNW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Calm	13.69050					

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Measured Point : บริเวณวิทยาลัยเทคนิคท่าหลวงซิเมนต์ไทยอนุสรณ์ ตำบลบ้านครัว อำเภอบ้านหมอ จังหวัดสระบุรี
Measured Date : August 15-22, 2022
Reported Number : WDA058/2565



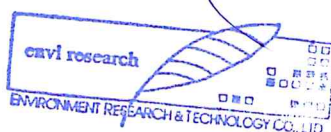
ANALYSIS REPORT

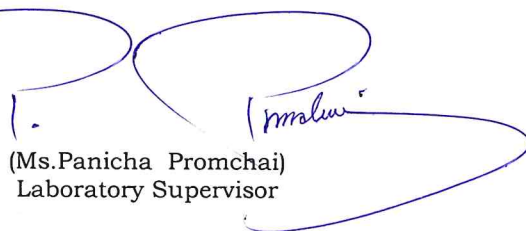
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Point : บริเวณชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอนาทวี จังหวัดนครศรีธรรมราช
GPS. Coordinate : UTM (WGS84) 47P 0688470 E, 1610951 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Reported Number : WDA059/2565

Time	Date	Aug 15-16, 22		Aug 16-17, 22		Aug 17-18, 22		Aug 18-19, 22		Aug 19-20, 22		Aug 20-21, 22		Aug 21-22, 22	
		WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
10:00 - 11:00		0.4	WNW	0.4	W	<0.4	Calm	0.4	WSW	0.9	WSW	<0.4	Calm	0.9	W
11:00 - 12:00		0.4	WNW	0.4	SSE	0.4	SSE	0.4	W	0.9	WSW	<0.4	Calm	0.9	WSW
12:00 - 13:00		0.9	WNW	0.4	S	<0.4	Calm	0.9	W	0.9	WSW	<0.4	Calm	0.9	WSW
13:00 - 14:00		1.8	WNW	0.4	S	<0.4	Calm	0.4	S	0.9	WSW	0.9	W	0.9	WSW
14:00 - 15:00		1.3	NW	0.4	WSW	<0.4	Calm	0.4	WSW	0.4	W	<0.4	Calm	0.4	SW
15:00 - 16:00		<0.4	Calm	<0.4	Calm	<0.4	Calm	0.9	W	0.9	W	<0.4	Calm	0.4	SSW
16:00 - 17:00		<0.4	Calm	0.9	WNW	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	1.3	WSW
17:00 - 18:00		0.4	S	0.4	W	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.9	SSE
18:00 - 19:00		<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	W	<0.4	Calm	0.9	WSW	0.4	SSE
19:00 - 20:00		<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	1.3	WSW	<0.4	Calm	<0.4	Calm
20:00 - 21:00		0.4	SSE	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	SSE	<0.4	Calm	<0.4	Calm
21:00 - 22:00		<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
22:00 - 23:00		<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
23:00 - 00:00		<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
00:00 - 01:00		<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	SSE	<0.4	Calm
01:00 - 02:00		<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
02:00 - 03:00		<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
03:00 - 04:00		<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
04:00 - 05:00		<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
05:00 - 06:00		<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm
06:00 - 07:00		<0.4	Calm	0.4	SSE	<0.4	Calm	<0.4	Calm	<0.4	Calm	<0.4	Calm	0.4	SSE
07:00 - 08:00		<0.4	Calm	0.4	S	<0.4	Calm	0.4	W	<0.4	Calm	0.4	SSE	<0.4	Calm
08:00 - 09:00		<0.4	Calm	<0.4	Calm	0.4	SSE	0.4	S	<0.4	Calm	0.4	SSE	0.4	SSE
09:00 - 10:00		0.4	S	0.4	SSE	0.4	SSE	0.9	WSW	<0.4	Calm	0.4	WSW	0.9	SSE

Remark : 1. WS = Wind Speed (m/s)
2. WD = Wind Direction
3. Height of wind vane and anemometer above ground 10 meters.


(Ms. Wassana Khunngoen)
Laboratory Reviewer




(Ms. Panicha Promchai)
Laboratory Supervisor

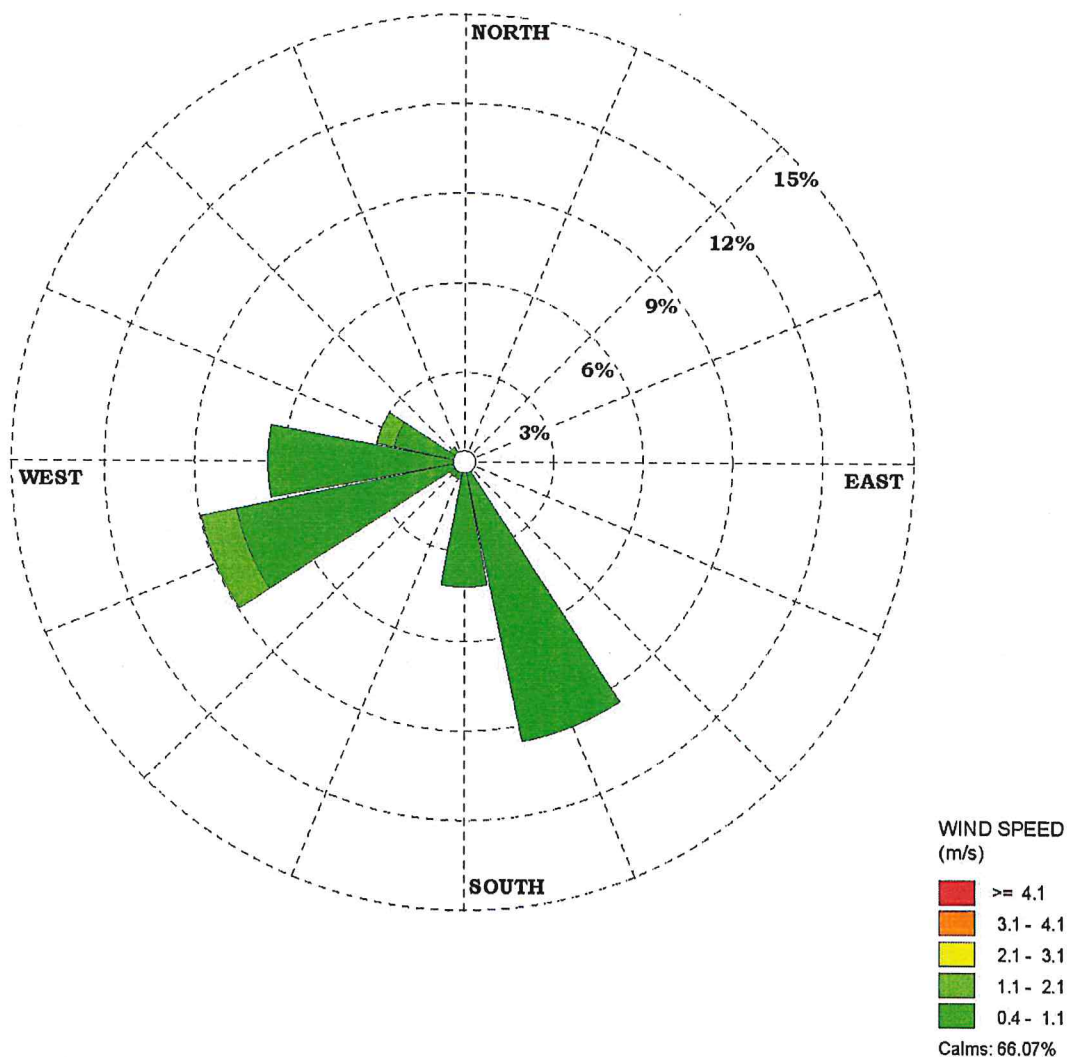
ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Point : บริเวณชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอนาทวี จังหวัดนครศรีธรรมราช
GPS. Coordinate : UTM (WGS84) 47P 0688470 E, 1610951 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Reported Number : WDA059/2565

Wind Direction	Percentage frequency of wind in each speed and direction					Total
	0.4-1.1	1.1-2.1	2.1-3.1	3.1-4.1	>4.1	
N	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NNE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
ENE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
ESE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SSE	9.52381	0.00000	0.00000	0.00000	0.00000	9.52381
S	4.16667	0.00000	0.00000	0.00000	0.00000	4.16667
SSW	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
SW	0.59524	0.00000	0.00000	0.00000	0.00000	0.59524
WSW	7.73810	1.19048	0.00000	0.00000	0.00000	8.92858
W	6.54762	0.00000	0.00000	0.00000	0.00000	6.54762
WNW	2.38095	0.59524	0.00000	0.00000	0.00000	2.97619
NW	0.00000	0.59524	0.00000	0.00000	0.00000	0.59524
NNW	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Calm	66.07140					

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Point : บริเวณชุมชนหมู่ที่ 9 ตำบลจำปา อำเภอกำแพง จังหวัดพระนครศรีอยุธยา
Measured Date : August 15-22, 2022
Reported Number : WDA059/2565

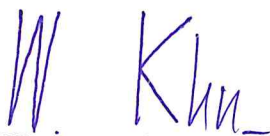


ANALYSIS REPORT

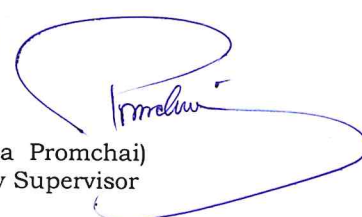
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Measured Point : บริเวณชุมชนหมู่ที่ 9 ตำบลบ้านควี อำเภอบ้านหมอ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0689739 E, 1612141 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Reported Number : WDA060/2565

Time	Date	Aug 15-16, 22		Aug 16-17, 22		Aug 17-18, 22		Aug 18-19, 22		Aug 19-20, 22		Aug 20-21, 22		Aug 21-22, 22	
		WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
12:00 - 13:00		0.4	W	0.9	WNW	1.8	S	1.3	WSW	1.3	W	0.9	SSE	0.9	WSW
13:00 - 14:00		0.4	WSW	0.9	WSW	1.8	S	1.3	W	1.3	W	0.4	NW	0.9	NW
14:00 - 15:00		0.9	NNW	1.3	SSW	1.8	SE	1.3	WSW	1.3	W	0.4	WNW	0.4	WSW
15:00 - 16:00		0.9	NW	1.3	SSW	1.8	SSE	1.3	SSW	1.3	WNW	0.9	W	0.9	WSW
16:00 - 17:00		0.9	NNW	0.9	SSW	1.3	SSE	1.3	W	1.3	W	0.9	W	0.4	SW
17:00 - 18:00		0.4	SSE	0.9	S	1.8	S	0.9	W	0.9	W	0.9	SW	0.4	SW
18:00 - 19:00		0.9	E	1.3	SSW	1.8	S	0.9	SSW	0.4	WNW	0.4	SW	0.4	SSW
19:00 - 20:00		0.9	ESE	0.4	W	1.3	SSE	0.4	W	0.4	W	1.3	S	0.9	SSE
20:00 - 21:00		0.9	SSE	0.4	S	1.3	SSE	0.9	SW	<0.4	Calm	1.3	S	0.4	S
21:00 - 22:00		1.8	SSE	0.9	S	1.3	S	0.9	SSW	2.2	SSW	1.3	SSE	0.4	SSE
22:00 - 23:00		1.8	SSE	1.3	SSE	1.3	SSE	1.3	S	1.8	SSW	1.3	S	0.4	S
23:00 - 00:00		1.8	SSE	2.7	SSE	0.9	SSW	1.3	S	0.9	S	1.3	SSW	0.9	SE
00:00 - 01:00		0.9	SE	2.7	SSE	0.9	SSW	0.9	SSE	0.9	SSE	0.9	SSW	0.9	SSE
01:00 - 02:00		0.4	SE	2.7	S	1.3	SW	0.4	S	0.9	S	0.9	SSW	0.4	SSE
02:00 - 03:00		0.9	S	2.2	SSE	0.9	SW	0.9	S	0.9	SSE	0.9	SSW	0.9	SE
03:00 - 04:00		0.9	E	1.3	SSE	0.9	SW	0.9	S	0.4	SSE	1.3	SSW	0.9	ESE
04:00 - 05:00		0.9	S	1.8	SSE	0.9	SW	0.9	SSE	0.4	SSE	0.9	S	0.9	ESE
05:00 - 06:00		0.9	ESE	1.3	SSE	1.3	S	0.9	SSE	0.4	SSE	0.9	S	0.4	ESE
06:00 - 07:00		0.4	E	1.8	SSE	1.3	SSE	0.4	SSE	0.9	SSE	1.3	SSE	0.4	ESE
07:00 - 08:00		0.4	E	1.8	SSE	1.3	SSE	0.9	SSE	0.4	SE	1.3	SSE	0.4	E
08:00 - 09:00		0.4	SSE	2.2	SSE	1.3	SSE	0.9	SSW	0.9	SSE	1.3	S	0.9	SSE
09:00 - 10:00		0.9	SSE	2.2	SSE	1.3	S	1.3	SW	1.3	SSE	1.8	S	1.3	SSE
10:00 - 11:00		0.9	WNW	2.2	S	1.3	S	1.3	SSW	1.3	SSE	1.3	SSW	1.3	SSE
11:00 - 12:00		0.9	W	2.2	SSE	1.8	S	1.3	W	1.3	SSE	0.9	SSW	0.9	SSE

Remark : 1. WS = Wind Speed (m/s)
2. WD = Wind Direction
3. Height of wind vane and anemometer above ground 10 meters.


(Ms. Wassana Khunngoen)
Laboratory Reviewer




(Ms. Panicha Promchai)
Laboratory Supervisor

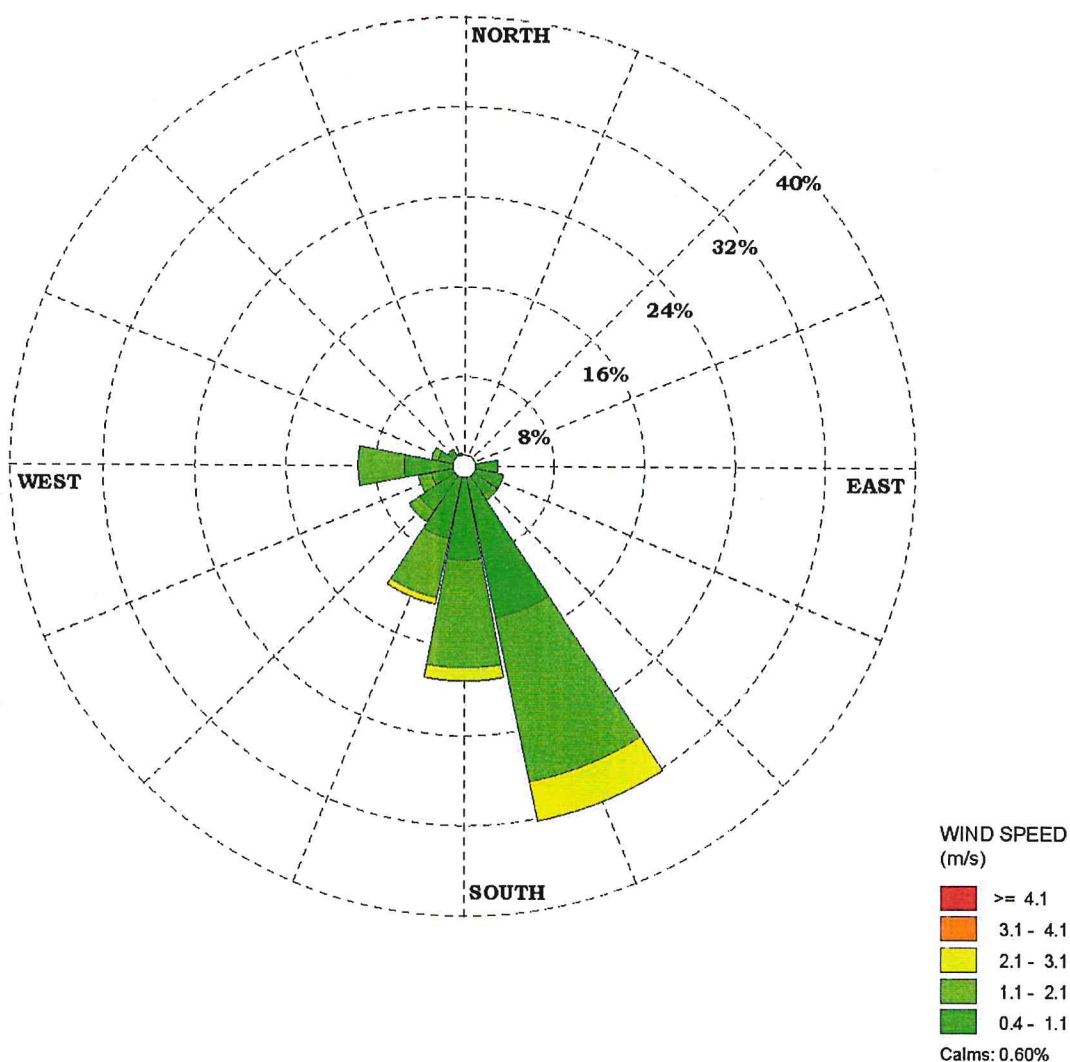
ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Measured Point : บริเวณชุมชนหมู่ที่ 9 ตำบลบ้านควี อำเภอบ้านหมือ จังหวัดสระบุรี
GPS. Coordinate : UTM (WGS84) 47P 0689739 E, 1612141 N
Measured Date : August 15-22, 2022
Measured By : Mr.Assada Chaiyawong
Analyzed By : Environment Research & Technology Co., Ltd.
Reported Number : WDA060/2565

Wind Direction	Percentage frequency of wind in each speed and direction					Total
	0.4-1.1	1.1-2.1	2.1-3.1	3.1-4.1	≥4.1	
N	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NNE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
ENE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E	2.97619	0.00000	0.00000	0.00000	0.00000	2.97619
ESE	3.57143	0.00000	0.00000	0.00000	0.00000	3.57143
SE	2.97619	0.59524	0.00000	0.00000	0.00000	3.57143
SSE	13.69050	14.88100	3.57143	0.00000	0.00000	32.14293
S	8.33333	9.52381	1.19048	0.00000	0.00000	19.04762
SSW	6.54762	5.35714	0.59524	0.00000	0.00000	12.50000
SW	4.76190	1.19048	0.00000	0.00000	0.00000	5.95238
WSW	2.97619	1.19048	0.00000	0.00000	0.00000	4.16667
W	5.35714	4.16667	0.00000	0.00000	0.00000	9.52381
WNW	2.38095	0.59524	0.00000	0.00000	0.00000	2.97619
NW	1.78571	0.00000	0.00000	0.00000	0.00000	1.78571
NNW	1.19048	0.00000	0.00000	0.00000	0.00000	1.19048
Calm	0.59524					

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Measured Point : บริเวณชุมชนหมู่ที่ 9 ตำบลบ้านควี้ อำเภอบ้านหมอ จังหวัดสระบุรี
Measured Date : August 15-22, 2022
Reported Number : WDA060/2565

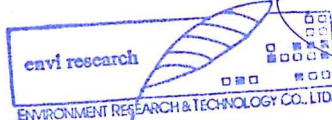


ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Sampling Source : Stack Sampling
Sampling Point : Canopy Hood (Inlet)
Stack Diameter : 3.2 meters
Sampling Date : August 20, 2022
Sampling Time : 09:10 – 10:10
Sampling Method : US.EPA. Method 1, 2
Sampling By : Mr.Chayanut Boongantong
Analyzed By : Environment Research & Technology Co., Ltd.

Item	Temperature (°C)	Pressure (mmHg)	Velocity (m/s)	Flow Rate	
				Actual Condition (m ³ /min)	Standard Condition (Nm ³ /min)
1	77	744	34.7	16,751	13,958

(Ms.Supawan Suwannapa)
Laboratory Reviewer



(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Sampling Source : Stack Sampling
Sampling Point : Bag House (Inlet)
Stack Diameter : 1.9 meters
Sampling Date : August 20, 2022
Sampling Time : 10:20 – 11:30
Sampling Method : US.EPA. Method 1, 2
Sampling By : Mr.Chayanut Boongantong
Analyzed By : Environment Research & Technology Co., Ltd.

Item	Temperature (°C)	Pressure (mmHg)	Velocity (m/s)	Flow Rate	
				Actual Condition (m ³ /min)	Standard Condition (Nm ³ /min)
1	63	745	29.2	4,969	4,319

(Ms.Supawan Suwannapa)
Laboratory Reviewer



(Ms.Panicha Promchai)
Laboratory Supervisor


ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Sampling Source : Stack Air Quality
Sampling Point : Canopy Hood (Inlet)
GPS. Coordinate : UTM (WGS84) 47P 0689188 E, 1611723 N
Sampling Date : August 20, 2022
Sampling Time : 09:10 – 10:10
Sampling Method : US.EPA. Method 1-4, 5
Sample Condition : Good
Sampling By : Mr.Chayanut Boongantong
Analyzed By : Environment Research & Technology Co., Ltd.

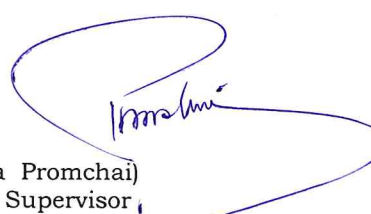
Analysis No. : ST852/2565
Received Date : August 23, 2022
Analytical Date : August 23-26, 2022
Report Date : August 26, 2022

Item	Description	Method of Analysis	Unit	Result
1	Fuel Type	-	-	Electric
2	Combustion System	-	-	Open
3	Stack Height	Measuring Tape	m.	25.0
4	Stack Diameter	Measuring Tape	m.	3.20
5	Flue Gas Temperature	Thermocouple	°C	77
6	Pressure in Stack	Incline Manometer	mmHg	744
7	Oxygen Rate	Electrochemical Sensor	%	20.6
8	Moisture	Condensation Method	%	3.3
9	Air Velocity	Type S Pitot Tube	m/s	34.7
10	Volume Metric Flow Rate ^{1/}	Calculate	Nm ³ /sec	233
			m ³ /sec	279
11	Total Suspended Particulate ^{1/}	Isokinetic, Gravimetric Method	mg/Nm ³	728

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


(Ms. Natnicha Sermmatiwong)
Laboratory Reviewer




(Ms. Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีดอน
Sampling Source : Stack Air Quality
Sampling Point : Canopy Hood (Inlet)
GPS. Coordinate : UTM (WGS84) 47P 0689188 E, 1611723 N
Sampling Date : November 8, 2022
Sampling Time : 09:50-10:35
Sampling Method : US.EPA. Method 1-4, 5
Sampling By : Mr.Wanchana Seehamart
Analyzed By : Environment Research & Technology Co., Ltd.

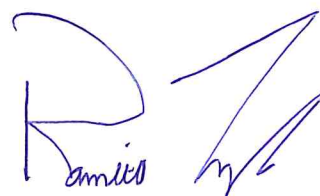
Quotation No. : 2022-00091
Analysis No. : 2022-AE187-003
Received Date : November 9, 2022
Analytical Date : November 9-12, 2022
Report No. : 2022-RAAJ124
Report Date : November 21, 2022

Item	Description	Method of Analysis	Unit	Result
1	Fuel Type	-	-	Electric
2	Combustion System	-	-	Open
3	Stack Height	Measuring Tape	m	25.0
4	Stack Diameter	Measuring Tape	m	3.20
5	Flue Gas Temperature	Thermocouple	°C	62
6	Pressure in Stack	Incline Manometer	mmHg	747
7	Oxygen Rate	Electrochemical Sensor	%	19.3
8	Moisture	Condensation Method	%	4.6
9	Air Velocity	Type S Pitot Tube	m/s	32.9
10	Volume Metric Flow Rate ^{1'}	Calculate	Nm ³ /hr	834,017
11	Volume Metric Flow Rate	Calculate	m ³ /hr	952,669
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	1,094

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



(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer

(Ms.Ramita Taengthai)
Laboratory Supervisor

ANALYSIS REPORT


Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Sampling Source : Stack Air Quality
Sampling Point : Canopy Hood (Outlet)
GPS. Coordinate : UTM (WGS84) 47P 0689194 E, 1611774 N
Sampling Date : August 20, 2022
Sampling Time : 09:10 – 10:10
Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E
Sample Condition : Good
Sampling By : Mr.Watcharangkun Kongsang
Analyzed By : Environment Research & Technology Co., Ltd.

Analysis No. : ST853/2565
Received Date : August 20, 2022
Analytical Date : August 20-26, 2022
Report Date : August 26, 2022

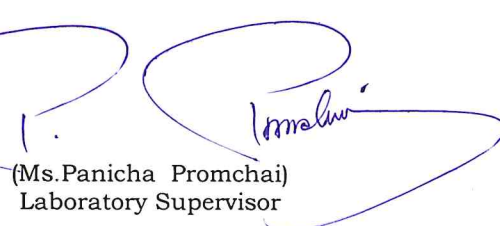
Item	Description	Method of Analysis	Unit	Result	Standard ^{2/}
1	Fuel Type	-	-	Electric	-
2	Combustion System	-	-	Open	-
3	Stack Height	Measuring Tape	m.	25.0	-
4	Stack Diameter	Measuring Tape	m.	4.00	-
5	Flue Gas Temperature	Thermocouple	°C	58	-
6	Pressure in Stack	Incline Manometer	mmHg	752	-
7	Oxygen Rate	Electrochemical Sensor	%	20.5	-
8	Moisture	Condensation Method	%	3.6	-
9	Air Velocity	Type S Pitot Tube	m/s	10.8	-
10	Volume Metric Flow Rate ^{1/}	Calculate	Nm ³ /sec m ³ /sec	121 136	- -
11	Sulfur Dioxide ^{1/}	Instrumental Analyzer Method	ppm mg/Nm ³	<1.0 <2.6	800 2,096
12	Oxide of Nitrogen ^{1/}	Instrumental Analyzer Method	ppm mg/Nm ³	1.4 2.6	200 376
13	Total Suspended Particulate ^{1/}	Isokinetic, Gravimetric Method	mg/Nm ³	7.5	240

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)


(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer




(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีรอน
Sampling Source : Stack Air Quality
Sampling Point : Canopy Hood (Outlet)
GPS. Coordinate : UTM (WGS84) 47P 0689194 E, 1611774 N
Sampling Date : November 8, 2022
Sampling Time : 09:50-10:50
Sampling Method : US.EPA. Method 1-4, 5
Sampling By : Mr.Watcharangkun Kongsaeng
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2022-00091
Analysis No. : 2022-AE187-004
Received Date : November 9, 2022
Analytical Date : November 9-12, 2022
Report No. : 2022-RAAJ125
Report Date : November 21, 2022

Item	Description	Method of Analysis	Unit	Result	Standard ^{2'}
1	Fuel Type	-	-	Electric	-
2	Combustion System	-	-	Open	-
3	Stack Height	Measuring Tape	m	25.0	-
4	Stack Diameter	Measuring Tape	m	4.00	-
5	Flue Gas Temperature	Thermocouple	°C	62	-
6	Pressure in Stack	Incline Manometer	mmHg	759	-
7	Oxygen Rate	Electrochemical Sensor	%	20.8	-
8	Moisture	Condensation Method	%	3.2	-
9	Air Velocity	Type S Pitot Tube	m/s	13.2	-
10	Volume Metric Flow Rate ^{1'}	Calculate	Nm ³ /hr	533,183	-
11	Volume Metric Flow Rate	Calculate	m ³ /hr	597,362	-
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	<1.0	240

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)

Nch

(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer

envi research
ENVIRONMENT RESEARCH & TECHNOLOGY CO., LTD.

Ramita

(Ms.Ramita Taengthai)
Laboratory Supervisor


ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรัตน
Sampling Source : Stack Air Quality
Sampling Point : Bag House (Inlet)
GPS. Coordinate : UTM (WGS84) 47P 0689199 E, 1611722 N
Sampling Date : August 20, 2022
Sampling Time : 10:20 – 11:30
Sampling Method : US.EPA. Method 1-4, 5
Sample Condition : Good
Sampling By : Mr.Chayanut Boongantong
Analyzed By : Environment Research & Technology Co., Ltd.

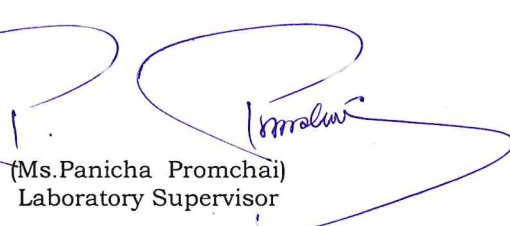
Analysis No. : ST854/2565
Received Date : August 23, 2022
Analytical Date : August 23-26, 2022
Report Date : August 26, 2022

Item	Description	Method of Analysis	Unit	Result
1	Fuel Type	-	-	Electric
2	Combustion System	-	-	Open
3	Stack Height	Measuring Tape	m.	17.5
4	Stack Diameter	Measuring Tape	m.	1.90
5	Flue Gas Temperature	Thermocouple	°C	63
6	Pressure in Stack	Incline Manometer	mmHg	745
7	Oxygen Rate	Electrochemical Sensor	%	20.9
8	Moisture	Condensation Method	%	3.6
9	Air Velocity	Type S Pitot Tube	m/s	29.2
10	Volume Metric Flow Rate ^{1/}	Calculate	Nm ³ /sec	72
			m ³ /sec	83
11	Total Suspended Particulate ^{1/}	Isokinetic, Gravimetric Method	mg/Nm ³	421

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


(Ms. Natnicha Sermmatiwong)
Laboratory Reviewer




(Ms. Panicha Promchai)
Laboratory Supervisor


ANALYSIS REPORT


Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีดง
Sampling Source : Stack Air Quality
Sampling Point : **Bag House (Inlet)**
GPS. Coordinate : UTM (WGS84) 47P 0689202 E, 1611725 N
Sampling Date : November 8, 2022
Sampling Time : 11:00-11:55
Sampling Method : US.EPA. Method 1-4, 5
Sampling By : Mr.Wanchana Seehamart
Analyzed By : Environment Research & Technology Co., Ltd.

Quotation No. : 2022-00091
Analysis No. : 2022-AE187-001
Received Date : November 9, 2022
Analytical Date : November 9-12, 2022
Report No. : 2022-RAAJ122
Report Date : November 21, 2022

Item	Description	Method of Analysis	Unit	Result
1	Fuel Type	-	-	Electric
2	Combustion System	-	-	Open
3	Stack Height	Measuring Tape	m	17.5
4	Stack Diameter	Measuring Tape	m	1.90
5	Flue Gas Temperature	Thermocouple	°C	68
6	Pressure in Stack	Incline Manometer	mmHg	751
7	Oxygen Rate	Electrochemical Sensor	%	19.3
8	Moisture	Condensation Method	%	5.2
9	Air Velocity	Type S Pitot Tube	m/s	27.5
10	Volume Metric Flow Rate ^{1'}	Calculate	Nm ³ /hr	242,508
11	Volume Metric Flow Rate	Calculate	m ³ /hr	281,139
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	604

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


(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer


(Ms.Ramita Taengthai)
Laboratory Supervisor


ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Sampling Source : Stack Air Quality
Sampling Point : Bag House (Outlet)
GPS. Coordinate : UTM (WGS84) 47P 0689230 E, 1611773 N
Sampling Date : August 20, 2022 **Analysis No.** : ST855/2565
Sampling Time : 10:20 – 11:35 **Received Date** : August 20, 2022
Sampling Method : US.EPA. Method 1-4, 5D, 6C, 7E **Analytical Date** : August 20-26, 2022
Sample Condition : Good **Report Date** : August 26, 2022
Sampling By : Mr.Watcharangkun Kongsang
Analyzed By : Environment Research & Technology Co., Ltd.

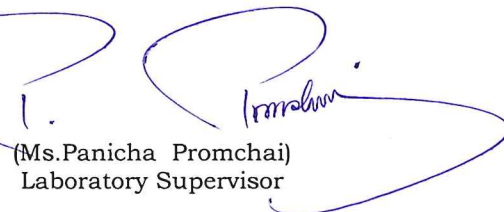
Item	Description	Method of Analysis	Unit	Result	Standard ^{2/}
1	Fuel Type	-	-	Electric	-
2	Combustion System	-	-	Open	-
3	Stack Height	Measuring Tape	m.	17.5	-
4	Stack Diameter	Measuring Tape	m.	10.00x17.30	-
5	Flue Gas Temperature	Thermocouple	°C	38	-
6	Pressure in Stack	Incline Manometer	mmHg	752	-
7	Oxygen Rate	Electrochemical Sensor	%	20.8	-
8	Moisture	Condensation Method	%	2.4	-
9	Air Velocity	Type S Pitot Tube	m/s	4.6	-
10	Volume Metric Flow Rate ^{1/}	Calculate	Nm ³ /sec m ³ /sec	754 796	- -
11	Sulfur Dioxide ^{1/}	Instrumental Analyzer Method	ppm mg/Nm ³	<1.0 <2.6	800 2,096
12	Oxide of Nitrogen ^{1/}	Instrumental Analyzer Method	ppm mg/Nm ³	<0.5 <0.9	200 376
13	Total Suspended Particulate ^{1/}	Isokinetic, Gravimetric Method	mg/Nm ³	2.8	240

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)


(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer




(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT


Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Sampling Source : Stack Air Quality
Sampling Point : Bag House (Outlet)
GPS. Coordinate : UTM (WGS84) 47P 0689230 E, 1611773 N
Sampling Date : November 8, 2022
Sampling Time : 11:00-11:55
Sampling Method : US.EPA. Method 1-4, 5D
Sampling By : Mr.Watcharangkun Kongsang
Analyzed By : Environment Research & Technology Co., Ltd.

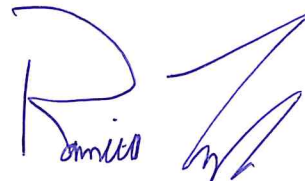
Quotation No. : 2022-00091
Analysis No. : 2022-AE187-002
Received Date : November 9, 2022
Analytical Date : November 9-12, 2022
Report No. : 2022-RAAJ123
Report Date : November 21, 2022

Item	Description	Method of Analysis	Unit	Result	Standard ^{2'}
1	Fuel Type	-	-	Electric	-
2	Combustion System	-	-	Open	-
3	Stack Height	Measuring Tape	m	17.5	-
4	Stack Diameter	Measuring Tape	m	10.00*17.30	-
5	Flue Gas Temperature	Thermocouple	°C	40	-
6	Pressure in Stack	Incline Manometer	mmHg	760	-
7	Oxygen Rate	Electrochemical Sensor	%	20.8	-
8	Moisture	Condensation Method	%	2.9	-
9	Air Velocity	Type S Pitot Tube	m/s	6.1	-
10	Volume Metric Flow Rate ^{1'}	Calculate	Nm ³ /hr	3,637,310	-
11	Volume Metric Flow Rate	Calculate	m ³ /hr	3,809,302	-
12	Total Suspended Particulate ^{1'}	Isokinetic, Gravimetric	mg/m ³	<1.0	240

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)


 (Ms.Natnicha Sermmatiwong)
 Laboratory Reviewer


 (Ms.Ramita Taengthai)
 Laboratory Supervisor

ANALYSIS REPORT


Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กที่ร้อน
Sampling Source : Stack Air Quality
Sampling Point : ปล่องเตาอบ WHF
GPS. Coordinate : UTM (WGS84) 47P 0689150 E, 1611571 N
Sampling Date : August 6, 2022
Sampling Time : 11:00 – 12:10
Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E
Sample Condition : Good
Sampling By : Mr.Chayanut Boongantong
Analyzed By : Environment Research & Technology Co., Ltd.

Analysis No. : ST826/2565
Received Date : August 6, 2022
Analytical Date : August 6-10, 2022
Report Date : August 11, 2022

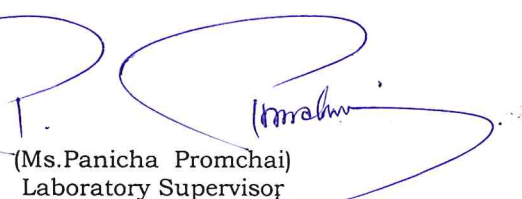
Item	Description	Method of Analysis	Unit	Result		Standard ^{2/}
				Actual Condition	Convert to Excess Oxygen 7%	
1	Fuel Type	-	-	Heavy Oil Grade C		-
2	Combustion System	-	-	Close		-
3	Stack Height	Measuring Tape	m.	40.0		-
4	Stack Diameter	Measuring Tape	m.	1.50		-
5	Flue Gas Temperature	Thermocouple	°C	352	-	-
6	Pressure in Stack	Incline Manometer	mmHg	758	-	-
7	Oxygen Rate	Electrochemical Sensor	%	5.6	-	-
8	Moisture	Condensation Method	%	6.7	-	-
9	Air Velocity	Type S Pitot Tube	m/s	16.0	-	-
10	Volume Metric Flow Rate ^{1/}	Calculate	Nm ³ /sec	13	-	-
			m ³ /sec	28	-	-
11	Sulfur Dioxide ^{1/}	Instrumental Analyzer Method	ppm	20	18	800
			mg/Nm ³	52	47	2,096
12	Oxide of Nitrogen ^{1/}	Instrumental Analyzer Method	ppm	199	181	200
			mg/Nm ³	374	341	376
13	Total Suspended Particulate ^{1/}	Isokinetic, Gravimetric Method	mg/Nm ³	8.7	7.9	240

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)


(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer




(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT


Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กที่ร้อน
Sampling Source : Stack Air Quality
Sampling Point : ปล่องเตาอบ RHF
GPS. Coordinate : UTM (WGS84) 47P 0689110 E, 1611606 N
Sampling Date : September 17, 2022
Sampling Time : 09:50 – 10:48
Sampling Method : US.EPA. Method 1-4, 5, 6C, 7E
Sample Condition : Good
Sampling By : Mr.Siwawut Thamnita
Analyzed By : Environment Research & Technology Co., Ltd.

Analysis No. : ST928/2565
Received Date : September 17, 2022
Analytical Date : September 17-21, 2022
Report Date : September 23, 2022


Item	Description	Method of Analysis	Unit	Result		Standard ^{2/}
				Actual Condition	Convert to Excess Oxygen 7%	
1	Fuel Type	-	-	Heavy Oil Grade C		-
2	Combustion System	-	-	Close		-
3	Stack Height	Measuring Tape	m.	23.0		-
4	Stack Diameter	Measuring Tape	m.	1.10		-
5	Flue Gas Temperature	Thermocouple	°C	203	-	-
6	Pressure in Stack	Incline Manometer	mmHg	757	-	-
7	Oxygen Rate	Electrochemical Sensor	%	13.6	-	-
8	Moisture	Condensation Method	%	5.6	-	-
9	Air Velocity	Type S Pitot Tube	m/s	14.4	-	-
10	Volume Metric Flow Rate ^{1/}	Calculate	Nm ³ /sec	8.5	-	-
			m ³ /sec	14	-	-
11	Sulfur Dioxide ^{1/}	Instrumental Analyzer Method	ppm	14	27	800
			mg/Nm ³	37	71	2,096
12	Oxide of Nitrogen ^{1/}	Instrumental Analyzer Method	ppm	66	126	200
			mg/Nm ³	124	237	376
13	Total Suspended Particulate ^{1/}	Isokinetic, Gravimetric Method	mg/Nm ³	12	23	240

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)


(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer




(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Sampling Source : Wastewater Sampling
Sampling Point : บริเวณคลองระบายน้ำใกล้แม่น้ำป่าสัก
GPS. Coordinate : UTM (WGS84) 47P 0688420 E, 1610971 N
Sampling Date : August 6, 2022
Sampling Time : 13:59
Sampling Method : Grab
Sampling By : Mr. Wanchana Seehamart, Registration No. ว-099-จ-7050
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No. ว-099
Physical Properties : Clear, Light Yellow, Sediment, Odorless

Quotation No. : 2022-00091
Analysis No. : 2022-AC839-001
Received Date : August 8, 2022
Analytical Date : August 8-25, 2022
Report No. : 2022-RAAF016
Report Date : September 1, 2022

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	7.6	5.5-9.0
Total Dissolved Solids	mg/L	Dried at 180°C	544	3,000*
Total Suspended Solids	mg/L	Dried at 103-105°C	<5.0	50
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.6	5
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).

* The standard value of TDS is divided into 2 cases;

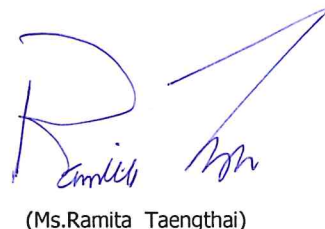
- In case of discharged to the water source, TDS shall not exceed 3,000 mg/l.

- In case of discharged to the water sources with TDS exceeding 3,000 mg/l, TDS in effluent discharge must exceed the TDS content in the water source not exceeding 5,000 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 : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีดอน
Sampling Source : Wastewater Sampling
Sampling Point : บริเวณน้ำทิ้งก่อนเข้าระบบบำบัด
GPS. Coordinate : UTM (WGS84) 47P 0689071 E, 1611520 N
Sampling Date : August 6, 2022
Sampling Time : 10:30
Sampling Method : Grab
Sampling By : Mr.Wanchana Seehamart, Registration No.ว-099-จ-7050
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Clear, Gray, Sediment, Odor

Quotation No. : 2022-00091
Analysis No. : 2022-AC839-003
Received Date : August 8, 2022
Analytical Date : August 8-25, 2022
Report No. : 2022-RAAF018
Report Date : September 1, 2022

Parameter	Unit	Method of Analysis ^{1'}	Result
pH	-	Electrometric	8.0
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	14
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	15
Total Dissolved Solids	mg/L	Dried at 180°C	640
Total Suspended Solids	mg/L	Dried at 103-105°C	10
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	2.1
Chemical Oxygen Demand	mg/L	Closed Reflux, Titrametric	<40
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.2

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


(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 : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีรอน
Sampling Source : Wastewater Sampling
Sampling Point : บริเวณน้ำทิ้งหลังผ่านระบบบำบัด
GPS. Coordinate : UTM (WGS84) 47P 0688524 E, 1611512 N
Sampling Date : August 6, 2022
Sampling Time : 10:37
Sampling Method : Grab
Sampling By : Mr.Wanchana Seehamart, Registration No.ว-099-จ-7050
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory
Registration No.ว-099
Physical Properties : Clear, Light Yellow, Sediment, Odorless

Quotation No. : 2022-00091
Analysis No. : 2022-AC839-004
Received Date : August 8, 2022
Analytical Date : August 8-25, 2022
Report No. : 2022-RAAF019
Report Date : September 1, 2022

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.2	5.5-9.0
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	16	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	14	300
Total Dissolved Solids	mg/L	Dried at 180°C	650	3,000*
Total Suspended Solids	mg/L	Dried at 103-105°C	17	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0	20
Chemical Oxygen Demand	mg/L	Closed Reflux, Titrametric	<40	120
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	2.5	5

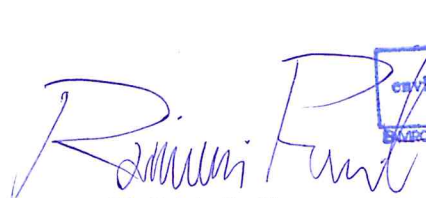
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.


^{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).

* The standard value of TDS is divided into 2 cases;

- In case of discharged to the water source, TDS shall not exceed 3,000 mg/l.

- In case of discharged to the water sources with TDS exceeding 3,000 mg/l, TDS in effluent discharge must exceed the TDS content in the water source not exceeding 5,000 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 : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กอีอีอี
Sampling Source : Wastewater Sampling
Sampling Point : บริเวณคลองระบายน้ำใกล้แม่น้ำป่าสัก
GPS. Coordinate : UTM (WGS84) 47P 0688420 E, 1610971 N
Sampling Date : November 8, 2022
Sampling Time : 12:34
Sampling Method : Grab
Sampling By : Mr.Watcharangkun Kongsang, Registration No.ว-099-จ-7672
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory Registration No.ว-099
Physical Properties : Clear, Light Yellow, Sediment, Odor

Quotation No. : 2022-00091
Analysis No. : 2022-AE193-001
Received Date : November 9, 2022
Analytical Date : November 9-18, 2022
Report No. : 2022-RAAI912
Report Date : November 23, 2022

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	7.9	5.5-9.0
Total Dissolved Solids	mg/L	Dried at 180°C	414	3,000*
Total Suspended Solids	mg/L	Dried at 103-105°C	8.0	50
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	3.6	5
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).

* The standard value of TDS is divided into 2 cases;

- In case of discharged to the water source, TDS shall not exceed 3,000 mg/l.

- In case of discharged to the water sources with TDS exceeding 3,000 mg/l. TDS in effluent discharge must exceed the TDS content in the water source not exceeding 5,000 mg/l.



(Ms.Sudarat Khejonrak)

Laboratory Reviewer No. ว-099-จ-7037



(Ms.Ramita Taengthai)

Laboratory Supervisor No. ว-099-จ-7664

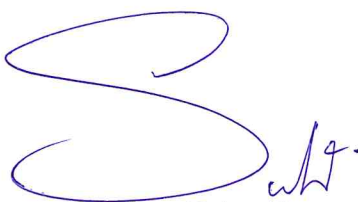
ANALYSIS REPORT

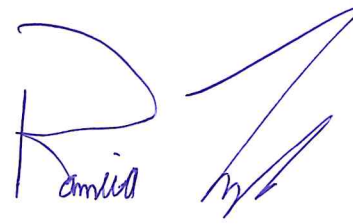
Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีดอน
Sampling Source : Wastewater Sampling
Sampling Point : บริเวณน้ำทิ้งก่อนเข้าระบบบำบัด
GPS. Coordinate : UTM (WGS84) 47P 0689095 E, 1611530 N
Sampling Date : November 8, 2022
Sampling Time : 12:14
Sampling Method : Grab
Sampling By : Mr. Watcharangkun Kongsang, Registration No. ว-099-จ-7672
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory Registration No. ว-099
Physical Properties : Clear, Light Yellow, Sediment, Odor

Quotation No. : 2022-00091
Analysis No. : 2022-AE193-002
Received Date : November 9, 2022
Analytical Date : November 9-18, 2022
Report No. : 2022-RAAI913
Report Date : November 23, 2022

Parameter	Unit	Method of Analysis ^{1'}	Result
pH	-	Electrometric	8.4
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	25
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	23
Total Dissolved Solids	mg/L	Dried at 180°C	706
Total Suspended Solids	mg/L	Dried at 103-105°C	29
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0
Chemical Oxygen Demand	mg/L	Closed Reflux, Titrametric	<40
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	3.2

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


(Ms. Sudarat Khejonrak)
Laboratory Reviewer No. ว-099-จ-7037


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

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กศรีตรัง
Sampling Source : Wastewater Sampling
Sampling Point : บริเวณน้ำทิ้งหลังผ่านระบบบำบัด
GPS. Coordinate : UTM (WGS84) 47P 0688523 E, 1611442 N
Sampling Date : November 8, 2022
Sampling Time : 12:05
Sampling Method : Grab
Sampling By : Mr. Watcharangkun Kongsang, Registration No. ว-099-จ-7672
Analyzed By : Environment Research & Technology Co., Ltd. Laboratory Registration No. ว-099
Physical Properties : Clear, Light Yellow, Sediment, Odor

Quotation No. : 2022-00091
Analysis No. : 2022-AE193-003
Received Date : November 9, 2022
Analytical Date : November 9-18, 2022
Report No. : 2022-RAAI914
Report Date : November 18, 2022

Parameter	Unit	Method of Analysis ^{1'}	Result	Standard ^{2'}
pH	-	Electrometric	8.2	5.5-9.0
Color (ADMI)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	23	300
Color (at pH 7)	ADMI	ADMI Weighted-Ordinate Spectrophotometric	22	300
Total Dissolved Solids	mg/L	Dried at 180°C	698	3,000*
Total Suspended Solids	mg/L	Dried at 103-105°C	17	50
Biochemical Oxygen Demand	mg/L	5-Day BOD Test, Membrane Electrode	<2.0	20
Chemical Oxygen Demand	mg/L	Closed Reflux, Titrametric	<40	120
Fat Oil and Grease	mg/L	Liquid-Liquid Partition, Gravimetric	1.6	5

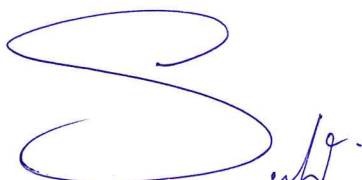
Remark : ^{1'} Standard Method for Examination of Water and Wastewater, 23rd Edition, 2017.

^{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).

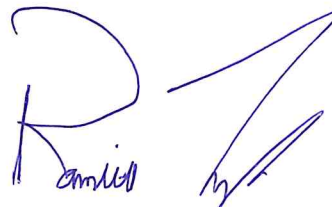
* The standard value of TDS is divided into 2 cases;

- In case of discharged to the water source, TDS shall not exceed 3,000 mg/l.

- In case of discharged to the water sources with TDS exceeding 3,000 mg/l. TDS in effluent discharge must exceed the TDS content in the water source not exceeding 5,000 mg/l.


(Ms. Sudarat Khejonrak)

Laboratory Reviewer No. ว-099-จ-7037


(Ms. Ramita Taengthai)

Laboratory Supervisor No. ว-099-จ-7664

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bangkhamode, Banmor, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กรีดร้อน
Sampling Source : Work Place Air Quality
Sampling Date : August 6, 2022
Sampling Time : 09:52 - 14:01
Sampling Method : APHA, NIOSH, OSHA
Sampling Condition : Good
Sampling By : Mr.Wanchana Seehamart (Personnel of Environment Research & Technology Co., Ltd.)

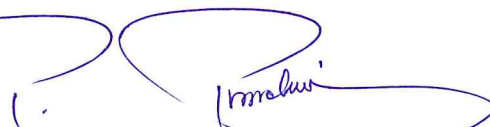
Analysis No. : WA453-2/2565
Received Date : August 8, 2022
Analytical Date : August 8 - 11, 2022
Report Date : August 15, 2022

Item	Sampling Area	Parameter	Method of Analysis	Unit	Result	Standard	
						Thai ^{1/}	ACGIH ^{2/}
1	บริเวณหน้าเตาหลอม	Carbon Monoxide	Non Dispersive Infrared	ppm	0.6	50	25
		Inhalable Dust	Gravimetric	mg/m ³	6.1	15	10
		Lead Inorganic, as Pb	Inductively Coupled Plasma (ICP-OES)	mg/m ³	0.002	0.05	0.05
		Nitrogen Dioxide	Spectrophotometry, Visible Absorption	ppm	<0.02	C 5	0.2
		Sulfur Dioxide	Titration	ppm	<0.11	5	0.25
2	บริเวณห่างจากเตาหลอมด้านหน้าเหล็ก 10 เมตร	Carbon Monoxide	Non Dispersive Infrared	ppm	0.5	50	25
		Inhalable Dust	Gravimetric	mg/m ³	0.87	15	10
		Nitrogen Dioxide	Spectrophotometry, Visible Absorption	ppm	<0.02	C 5	0.2
		Sulfur Dioxide	Titration	ppm	<0.11	5	0.25
3	ฝุ่นที่ได้รับจากระบบดักฝุ่น	Lead Inorganic, as Pb	Inductively Coupled Plasma (ICP-OES)	mg/m ³	0.005	0.05	0.05

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.
C = Ceiling Limit.


(Ms.Natnicha Sermmatiwong)
Laboratory Reviewer




(Ms.Panicha Promchai)
Laboratory Supervisor

ANALYSIS REPORT

Customer Name : Tata Steel Manufacturing (Thailand) PCL. (Branch : 00004)
Address : 49 Moo 11, Bang Khamot, Banmoh, Saraburi 18270
Project Name : โครงการขยายโรงงานเหล็กกรีดร้อน
Sampling Source : Work Place Air Quality
Sampling Date : November 8, 2022
Sampling Time : 10:08 - 11:20
Sampling Method : APHA, NIOSH
Sampling Condition : Good
Sampling By : Mr.Chatchai Yowapuy (Personnel of Environment Research & Technology Co., Ltd.)

Analysis No. : WA629-1/2565
Received Date : November 11, 2022
Analytical Date : November 11 - 17, 2022
Report Date : November 17, 2022

Item	Sampling Area	Parameter	Method of Analysis	Unit	Result	Standard	
						Thai ^{1/}	ACGIH ^{2/}
1	บริเวณหน้าเตาหลอม	Carbon Monoxide	Non Dispersive Infrared	ppm	0.8	50	25
		Nitrogen Dioxide	Spectrophotometry, Visible Absorption	ppm	<0.02	C 5	0.2
		Sulfur Dioxide	Titration	ppm	<0.11	5	0.25
		Inhalable Dust	Gravimetric	mg/m ³	3.3	-	10
2	บริเวณห่างจากเตาหลอมด้านหน้าเหล็ก 10 เมตร	Carbon Monoxide	Non Dispersive Infrared	ppm	0.6	50	25
		Nitrogen Dioxide	Spectrophotometry, Visible Absorption	ppm	<0.02	C 5	0.2
		Sulfur Dioxide	Titration	ppm	<0.11	5	0.25
		Inhalable Dust	Gravimetric	mg/m ³	0.90	-	10

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.
C = Ceiling Limit.


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