



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 94/05/2019-20

Date : 30/05/2019

NATIONAL AMBIENT AIR QUALITY MONITORING REPORT FOR THE MONTH - MAY : 2019

Name of company : JINDAL SAW LIMITED
 Village: Samaghogha,
 Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182_2/6/10/23

NABL Certificate No. : TC 5948

Sr.No.	Particulars	Unit	Location No.1 : STP							
			1	2	3	4	5	6	7	8
01.	No. of Week	---	1	2	3	4				
02.	Date & Time Starting of Monitoring	---	03/05/19 09.00	07/05/19 09.00	10/05/19 09.00	13/05/19 09.00	17/05/19 09.00	20/05/19 09.00	24/05/19 09.00	27/05/19 09.00
03.	Date & Time Ending of Monitoring	---	04/05/19 09.00	08/05/19 09.00	11/05/19 09.00	14/05/19 09.00	18/05/19 09.00	21/05/19 09.00	25/05/19 09.00	28/05/19 08.00
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	---	ESE	SES	ESE	SE	SE	SSE	ESE	ESE
06.	Average Wind Speed	Km/Hr.	4.7	4.5	6.5	6.7	7.3	5.4	5.6	6.4
07.	Average flow rate for Dust Monitoring PM10	m ³ /min.	1.20	1.10	1.20	1.20	1.1	1.1	1.20	1.20
08.	Average flow rate for Dust Monitoring PM2.5	m ³ /hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
09.	Average flow rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible limits for PM10*	µg/m ³	100	100	100	100	100	100	100	100
11.	Measured Concentration of PM10	µg/m ³	47	59	49	51	52	47	55	51
12.	Permissible limits for PM2.5*	µg/m ³	60	60	60	60	60	60	60	60
13.	Measured Concentration of PM2.5 #	µg/m ³	32	35	34	31	34	35	38	40
14.	Permissible limits for SO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO ₂	µg/m ³	8.0	10.3	9.4	10.1	9.1	10.2	9.5	11.2
16.	Permissible limits for NO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO ₂	µg/m ³	16.4	17.9	17.6	18.1	15.8	17.8	17.9	17.1
18.	Permissible limit for CO **	µg/m ³	2000	2000	2000	2000	2000	2000	2000	2000
19.	Measured Concentration of CO #	µg/m ³	BDL	BDL	BDL	BDL	BDL	BDL	B.D.L.	B.D.L.

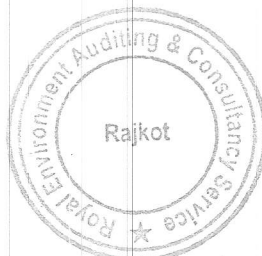
Instrument used : RDS (APM - 217 BL), Gaseous Sampler (AAS 109), PM 2.5 Sampler (AAS 127)

Parameters are not covered in NABL Scope

Calibration done on : 05/05/2019

*Permissible Limits are as per NAAQ Standard 16th November 2009.

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 95/05/2019-20

Date : 30/05/2019

NATIONAL AMBIENT AIR QUALITY MONITORING REPORT FOR THE MONTH - MAY : 2019

Name of company : JINDAL SAW LIMITED
 Village: Samaghogha,
 Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182_2/6/10/23

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	Location No. 2: Vikashpuram							
			1	2	3	4	5	6	7	8
01.	No. of Week	----								
02.	Date & Time Starting of Monitoring	---	03/05/19 09.00	07/05/19 09.00	10/05/19 09.00	13/05/19 09.00	17/05/19 09.00	20/05/19 09.00	24/05/19 09.00	27/05/19 09.00
03.	Date & Time Ending of Monitoring	----	04/05/19 09.00	08/05/19 09.00	11/05/19 09.00	14/05/19 09.00	18/05/19 09.00	21/05/19 09.00	25/05/19 09.00	28/05/19 08.00
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	----	ESE	SES	ESE	SE	SE	SSE	ESE	ESE
06.	Average Wind Speed	Km/Hr.	4.8	4.4	6.8	6.8	7.2	5.6	5.4	6.2
07.	Average flow rate for Dust Monitoring PM10	m ³ /min.	1.20	1.10	1.20	1.20	1.1	1.1	1.20	1.20
08.	Average flow rate for Dust Monitoring PM2.5	m ³ /hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
09.	Average flow rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible limits for PM10*	µg/m ³	100	100	100	100	100	100	100	100
11.	Measured Concentration of PM10	µg/m ³	52	57	44	49	56	52	54	52
12.	Permissible limits for PM2.5*	µg/m ³	60	60	60	60	60	60	60	60
13.	Measured Concentration of PM2.5 #	µg/m ³	34	31	38	35	39	42	36	42
14.	Permissible limits for SO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO ₂	µg/m ³	11.4	9.1	10.1	10.9	10.8	12.8	11.1	12.1
16.	Permissible limits for NO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO ₂	µg/m ³	21.1	19.4	16.1	18.8	18.1	20.1	20.4	21.1
18.	Permissible limit for CO **	µg/m ³	2000	2000	2000	2000	2000	2000	2000	2000
19.	Measured Concentration of CO#	µg/m ³	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Instrument used : RDS (APM - 217 BL), Gaseous Sampler (AAS 109), PM 2.5 Sampler (AAS 127)

Parameters are not covered in NABL Scope

Calibration done on : 05/05/2019

*Permissible Limits are as per NAAQ Standard 16th November 2009.



Royal Environment Auditing & Consultancy Service

Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 96/05/2019-20

Date : 30/05/2019

NATIONAL AMBIENT AIR QUALITY MONITORING REPORT FOR THE MONTH - MAY : 2019

Name of company : JINDAL SAW LIMITED

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182_2/6/10/23

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	Location No.3 : Nr. Spiral-II Pipe Storage Yard							
			1	2	3	4	5	6	7	8
01.	No. of Week	---								
02.	Date & Time Starting of Monitoring	---	03/05/19 09.00	07/05/19 09.00	10/05/19 09.00	13/05/19 09.00	17/05/19 09.00	20/05/19 09.00	24/05/19 09.00	27/05/19 09.00
03.	Date & Time Ending of Monitoring	---	04/05/19 09.00	08/05/19 09.00	11/05/19 09.00	14/05/19 09.00	18/05/19 09.00	21/05/19 09.00	25/05/19 09.00	28/05/19 08.00
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	---	ESE	SES	ESE	SE	SE	SSE	ESE	ESE
06.	Average Wind Speed	Km/Hr.	4.6	4.8	6.4	6.8	7.1	5.8	5.8	6.4
07.	Average flow rate for Dust Monitoring PM10	m ³ /min.	1.20	1.10	1.20	1.20	1.1	1.1	1.20	1.20
08.	Average flow rate for Dust Monitoring PM2.5	m ³ /hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
09.	Average flow rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible limits for PM10*	µg/m ³	100	100	100	100	100	100	100	100
11.	Measured Concentration of PM10	µg/m ³	55	59	65	62	55	64	59	66
12.	Permissible limits for PM2.5*	µg/m ³	60	60	60	60	60	60	60	60
13.	Measured Concentration of PM2.5 #	µg/m ³	38	36	42	40	39	45	34	44
14.	Permissible limits for SO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO ₂	µg/m ³	8.8	12.5	13.7	12.1	13.4	12.4	12.1	11.8
16.	Permissible limits for NO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO ₂	µg/m ³	24.2	22.1	23.5	24.5	26.8	22.1	23.5	26.8
18.	Permissible limit for CO**	µg/m ³	2000	2000	2000	2000	2000	2000	2000	2000
19.	Measured Concentration of CO #	µg/m ³	BDL	BDL	BDL	BDL	BDL	BDL	B.D.L.	B.D.L.

Instrument used : RDS (APM - 217 BL), Gaseous Sampler (AAS 109), PM 2.5 Sampler (AAS 127)

Parameters are not covered in NABL Scope

Calibration done on : 05/05/2019

*Permissible Limits are as per NAAQ Standard 16th November 2009.



Royal Environment Auditing & Consultancy Service

Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royalenvironment@live.com admin@royalconsultancy.com

Ref. No. : 97/05/2019-20

Date : 30/05/2019

NATIONAL AMBIENT AIR QUALITY MONITORING REPORT FOR THE MONTH - MAY : 2019

Name of company : JINDAL SAW LIMITED
 Village: Samaghogha,
 Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182_2/6/10/23

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	Location No.4 : Old Colony							
			1	2	3	4				
01.	No. of Week	---								
02.	Date & Time Starting of Monitoring	---	03/05/19 09.00	07/05/19 09.00	10/05/19 09.00	13/05/19 09.00	17/05/19 09.00	20/05/19 09.00	24/05/19 09.00	27/05/19 09.00
03.	Date & Time Ending of Monitoring	---	04/05/19 09.00	08/05/19 09.00	11/05/19 09.00	14/05/19 09.00	18/05/19 09.00	21/05/19 09.00	25/05/19 09.00	28/05/19 08.00
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	---	ESE	SES	ESE	SE	SE	SSE	ESE	ESE
06.	Average Wind Speed	Km/Hr.	4.6	4.5	6.7	6.2	7.5	5.9	5.4	6.4
07.	Average flow rate for Dust Monitoring PM10	m ³ /min.	1.20	1.10	1.20	1.20	1.1	1.1	1.20	1.20
08.	Average flow rate for Dust Monitoring PM2.5	m ³ /hr.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
09.	Average flow rate for Gas Monitoring	LPM	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10.	Permissible limits for PM10*	µg/m ³	100	100	100	100	100	100	100	100
11.	Measured Concentration of PM10	µg/m ³	66	52	56	63	56	60	58	57
12.	Permissible limits for PM2.5*	µg/m ³	60	60	60	60	60	60	60	60
13.	Measured Concentration of PM2.5 #	µg/m ³	42	34	38	38	36	44	41	36
14.	Permissible limits for SO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
15.	Measured Concentration of SO ₂	µg/m ³	11.6	12.5	14.2	13.5	12.5	11.8	14.2	12.8
16.	Permissible limits for NO ₂ *	µg/m ³	80	80	80	80	80	80	80	80
17.	Measured Concentration of NO ₂	µg/m ³	22.4	21.7	21.5	20.5	24.8	22.5	21.5	25.6
18.	Permissible limit for CO **	µg/m ³	2000	2000	2000	2000	2000	2000	2000	2000
19.	Measured Concentration of CO #	µg/m ³	BDL	BDL	BDL	BDL	BDL	BDL	B.D.L.	B.D.L.

Instrument used : RDS (APM - 217 BL), Gaseous Sampler (AAS 109), PM 2.5 Sampler (AAS 127)

Parameters are not covered in NABL Scope

Calibration done on : 05/05/2019

*Permissible Limits are as per NAAQ Standard 16th November 2009.

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. :98/05/2019-20

Date : 30/05/2019

FUGITIVE EMISSION MONITORING REPORT

Name of company : JINDAL SAW LIMITED
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182_Part - 2/6/10/23/22

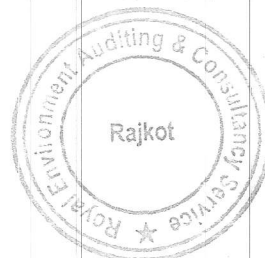
Sr. No.	Particulars	Unit	A-4
01.	Location of Ambient	---	BF-1 De-Dusting System
02.	Date of sampling	---	07/05/2019
03.	Time of sampling	---	10.00
04.	Duration of Sampling	Hr.	8.00
05.	Dominant Wind Direction (From)	---	WNW
06.	Average Wind Speed	Km/Hr.	5.1
07.	Average flow rate during sampling	m ³ /Hr.	1.0
08.	Average flow rate for Gas sampling	LPM	0.2
09.	Permissible limits for PM 10*	µg/m³	3000
10.	Measured Concentration of PM 10	µg/m ³	1545
11.	Permissible limits for SO₂*	µg/m³	150
12.	Measured Concentration of SO ₂	µg/m ³	15.2
13.	Permissible limits for NO₂*	µg/m³	120
14.	Measured Concentration of NO ₂	µg/m ³	20.1
15.	Permissible limit for CO **	µg/m³	2000
16.	Measured Concentration of CO #	µg/m ³	BDL
17.	Permissible limit for Pb*	µg/m³	2
18.	Measured Concentration of Pb #	µg/m ³	ND

Instrument used : (1) 3 Nos. RDS (APM - 217 BL), (2) 3 Nos. Gaseous Sampler (APM 109)

Parameters are not covered in NABL Scope

Calibration done on : 05/05/2019

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royalsenvironment@live.com admin@royalconsultancy.com

Ref. No. :99/05/2019-20

Date : 30/05/2019

FUGITIVE EMISSION MONITORING REPORT

Name of company : JINDAL SAW LIMITED
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182_Part - 2/6/10/23/22

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	A - 2	A - 3
01.	Location of Ambient	---	Sinter 2 Ground Hopper	Sinter RMH Yard
02.	Date of sampling	---	16/05/2019	13/05/2019
03.	Time of sampling	---	9.30	9.10
04.	Duration of Sampling	Hr.	8.00	8.00
05.	Dominant Wind Direction (From)	---	WNW	WNW
06.	Average Wind Speed	Km/Hr.	5.1	4.8
07.	Average flow rate during sampling	m ³ /Hr.	1.0	1.0
08.	Average flow rate for Gas sampling	LPM	0.2	0.2
09.	Permissible limits for PM 10*	µg/m ³	3000	3000
10.	Measured Concentration of PM 10	µg/m ³	1256	1365
11.	Permissible limits for SO ₂ *	µg/m ³	150	150
12.	Measured Concentration of SO ₂	µg/m ³	12.8	13.8
13.	Permissible limits for NO ₂ *	µg/m ³	120	120
14.	Measured Concentration of NO ₂	µg/m ³	21.2	20.8
15.	Permissible limit for CO **	µg/m ³	2000	2000
16.	Measured Concentration of CO #	µg/m ³	BDL	BDL
17.	Permissible limit for Pb*	µg/m ³	2	2
18.	Measured Concentration of Pb #	µg/m ³	ND	ND

Instrument used : (1) 3 Nos. RDS (APM - 217 BL), (2) 3 Nos. Gaseous Sampler (APM 109)

Calibration done on : 05/05/2019

Parameters are not covered in NABL Scope

BDL= Below Detectable Limit

ND= Not Detectable

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royalenvironment@live.com admin@royalconsultancy.com

Ref. No. :100/05/2019-20

Date : 30/05/2019

FUGITIVE EMISSION MONITORING REPORT

Name of company : JINDAL SAW LIMITED

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182_Part - 2/6/10/23/22

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	A - 5
01.	Location of Ambient	---	DISP Induction Furnace Area
02.	Date of sampling	---	17/05/2019
03.	Time of sampling	---	9.30
04.	Duration of Sampling	Hr.	8.00
05.	Dominant Wind Direction (From)	---	WNW
06.	Average Wind Speed	Km/Hr.	5.9
07.	Average flow rate during sampling	m ³ /Hr.	1.0
08.	Average flow rate for Gas sampling	LPM	0.2
09.	Permissible limits for PM 10*	µg/m ³	3000
10.	Measured Concentration of PM 10	µg/m ³	1358
11.	Permissible limits for SO ₂ *	µg/m ³	150
12.	Measured Concentration of SO ₂	µg/m ³	15.4
13.	Permissible limits for NO ₂ *	µg/m ³	120
14.	Measured Concentration of NO ₂	µg/m ³	22.4
15.	Permissible limit for CO **	µg/m ³	2000
16.	Measured Concentration of CO #	µg/m ³	BDL
17.	Permissible limit for Pb*	µg/m ³	2
18.	Measured Concentration of Pb #	µg/m ³	ND

Instrument used : (1) 3 Nos. RDS (APM - 217 BL), (2) 3 Nos. Gaseous Sampler (APM 109)

Calibration done on : 05/05/2019

Parameters are not covered in NABL Scope

Royal Environment Auditing & Consultancy Service



Kauri
Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. :101/05/2019-20

Date : 30/05/2019

FUGITIVE EMISSION MONITORING REPORT

Name of company : JINDAL SAW LIMITED

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182_Part - 2/6/10/23/22

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	A - 6	A - 1
01.	Location of Ambient	---	BF-2 CAST HOUSE	BF-2 Ground Hopper
02.	Date of sampling	---	16/05/2019	08/05/2019
03.	Time of sampling	---	10.00	9.30
04.	Duration of Sampling	Hr.	8.00	8.00
05.	Dominant Wind Direction (From)	---	ESE	ESE
06.	Average Wind Speed	Km/Hr.	5.9	5.6
07.	Average flow rate during sampling	m ³ /Hr.	1.0	1.0
08.	Average flow rate for Gas sampling	LPM	0.2	0.2
09.	Permissible limits for PM 10*	µg/m ³	3000	3000
10.	Measured Concentration of PM 10	µg/m ³	1456	1289
11.	Permissible limits for SO ₂ *	µg/m ³	150	150
12.	Measured Concentration of SO ₂	µg/m ³	17.9	18.1
13.	Permissible limits for NO ₂ *	µg/m ³	120	120
14.	Measured Concentration of NO ₂	µg/m ³	19.2	22.1
15.	Permissible limit for CO **	µg/m ³	2000	2000
16.	Measured Concentration of CO #	µg/m ³	BDL	BDL
17.	Permissible limit for Pb*	µg/m ³	2	2
18.	Measured Concentration of Pb #	µg/m ³	ND	ND

Instrument used : (1) 3 Nos. RDS (APM - 217 BL), (2) 3 Nos. Gaseous Sampler (APM 109)

Calibration done on : 05/05/2019

Parameters are not covered in NABL Scope

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royalenvironment@live.com admin@royalconsultancy.com

Ref. No. : 102/05/2019-20

Date : 30/05/2019

Performance Evaluation of Air Pollution Control Equipments Sinter Plant-1 (GPCB ID 35456)

Name of Company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_Part - 1/3

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	S - 3
01	Date of Sampling	---	10-05-2019
02	Attached to	---	Sinter Furnace
03	Stack Height	Meter	50
04	Stack Diameter	Meter	2.0
05	Stack Temperature	°C	151
06	Ambient Temperature	°C	34
07	Average Velocity of Flue Gases	m/sec.	15.89
08	IsoKinetic Flowrate for Sampling	LPM	23
09	PM Concentration in Inlet	mg/Nm ³	1482
10	PM Concentration in Outlet	mg/Nm ³	26.5
11	Efficiency	%	98.21

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on 12/09/2019

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 103/05/2019-20

Date : 30/05/2019

Performance Evaluation of Air Pollution Control Equipments Sinter Plant-2 (GPCB ID:29017)

Name of company : JINDAL SAW LIMITED,
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_Part - 1/3

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	S-15	S - 7
01	Date of Sampling	---	14-05-2019	09-05-2019
02	Attached to	---	Discharging End of Sinter de-dusting system	Sinter Furnace
03	Stack Height	Meter	50	50
04	Stack Diameter	Meter	1.3	2.0
05	Stack Temperature	°C	171	146
06	Ambient Temperature	°C	34	37
07	Average Velocity of Flue Gases	m/sec.	15.32	17.9
08	IsoKinetic Flowrate for Sampling	LPM	21	22
09	PM Concentration in Inlet	mg/Nm ³	1423.37	1456.21
10	PM Concentration in Outlet	mg/Nm ³	34	28
11	Efficiency	%	97.61	98.08

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on 12/09/2019

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 104/05/2019-20

Date : 30/05/2019

Performance Evaluation of Air Pollution Control Equipments Blast Furnace Plant-1(GPCB ID:18037)

Name of company : JINDAL SAW LIMITED,
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_Part - 1/3

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	S - 1
01	Date of Sampling	---	11-05-2019
02	Attached to	---	De-dustingSystem
03	Stack Height	Meter	35
04	Stack Duct Diameter	Meter	1.4
05	Stack Temperature	°C	42
06	Ambient Temperature	°C	36
07	Average Velocity of Flue Gases	m/sec.	15.21
08	IsoKinetic Flowrate for Sampling	LPM	23
09	PM Concentration in Inlet	mg/Nm ³	1072.51
10	PM Concentration in Outlet	mg/Nm ³	15
11	Efficiency	%	98.60

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on 12/09/2019

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 105/05/2019-20

Date : 30/05/2019

Performance Evaluation of Air Pollution Control Equipments Blast Furnace Plant-2 (GPCB ID:29026)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_Part - 1/3

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	S - 1
01	Date of Sampling	---	11/05/2019
02	Attached to	---	Dedusting System
03	Stack Height	Meter	40
04	Stack Duct Diameter	Meter	1.5
05	Stack Temperature	°C	41
06	Ambient Temperature	°C	33
07	Average Velocity of Flue Gases	m/sec.	14.29
08	IsoKinetic Flowrate for Sampling	LPM	24
09	Inlet	mg/Nm ³	1065.21
10	Outlet	mg/Nm ³	36
11	Efficiency	%	96.62

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on 12/09/2019

Royal Environment Auditing & Consultancy Service



Handwritten signature

Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 106/05/2019-20

Date : 30/05/2019

Performance Evaluation of Air Pollution Control Equipments Pipe Plant (GPCB ID:18036)

Name of company : JINDAL SAW LIMITED,
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_Part - 1/3

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	S - 11	S- 35	S - 10
01	Date of Sampling	---	21/05/2019	22/05/2019	23/05/2019
02	Attached to	---	Zn Coating - II	Zn Coating - III	Common stack Mg Converter - I & II
03	Stack Height	Meter	30	30	30
04	Stack Diameter	Meter	0.5	0.5	0.5
05	Stack Temperature	°C	36	36	58
06	Ambient Temperature	°C	36	34	37
07	Average Velocity of Flue Gases	m/sec.	12.1	11.2	8.54
08	IsoKinetic Flowrate for Sampling	LPM	21	23	18
09	PM Concentration in Inlet	mg/Nm ³	415.21	384.57	646.21
10	PM Concentration in Outlet	mg/Nm ³	14.2	11	44
11	Efficiency	%	96.58	97.14	93.19

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100
Calibration due on 12/09/2019

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 107/05/2019-20

Date : 30/05/2019

Performance Evaluation of Air Pollution Control Equipments Pipe Plant (SDP-2) (GPCB ID:18036)

Name of company : JINDAL SAW LIMITED,
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_Part - 1/3

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	S - 1	S-8	S-9
01	Date of Sampling	---	17/05/2019	17/05/2019	18/05/2019
02	Attached to	---	Mg Treatment	Zinc Coating	Zinc Coating FL-7
03	Stack Height	Meter	30	30	30
04	Stack Duct Diameter	Meter	1.00	1	1
05	Stack Temperature	°C	50	44	47
06	Ambient Temperature	°C	35	36	39
07	Average Velocity of Flue Gases	m/sec.	11.10	11.65	11.12
08	IsoKinetic Flowrate for Sampling	LPM	22	20	21
09	PM Concentration in Inlet	mg/Nm ³	1115.21	345.21	421.5
10	PM Concentration in Outlet	mg/Nm ³	35	15	19
11	Efficiency	%	96.86	95.65	95.49

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on 12/09/2019

Royal Environment Auditing & Consultancy Service



Kavi
Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 108/05/2019-20

Date : 30/05/2019

STACK EMISSION MONITORING RESULTS Sinter Plant - 1(GPCB ID:35456)

Name of company : JINDAL SAW LIMITED,
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_Part - 1/2/3/7

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	S - 3	S - 4	S - 5	S - 6
01	Date of Sampling	---	10-05-2019	13-05-2019	13-05-2019	10-05-2019
02	Time of sampling	---	9.30	11.30	9.30	14.30
03	Stack Attached to	---	Sinter Furnace	Primary Mixture House	Secondary Mixture House	Discharge End
04	Air Pollution Control Measures	---	ESP	ESP
05	Stack Height	Meter	50	19.75	36.08	32
06	Stack Diameter	Meter	2.0	1.25	1.25	1.30
07	Stack Temperature	°C	142	36	37	135
08	Ambient Temperature	°C	32	34	36	37
09	Average Velocity of Flue Gases	m/sec.	11.21	7.62	2.45	11.21
10	Isokinetic flow rate for P.M. Sampling	LPM	16	15	16	17
11	Gaseous Sampling Flow Rate	LPM	2.0	NA	NA	NA
12	Permissible limits for PM	mg/Nm ³	150	150	150	150
13	Measured Concentration of PM	mg/Nm ³	26.5	17.4	16.1	32
14	Permissible limits for SO ₂	ppm	100	NA	NA	NA
15	Measured Concentration of SO ₂	ppm	11.2
16	Permissible limits for NO _x	ppm	50	NA	NA	NA
17	Measured Concentration of NO _x	ppm	24.1

Note : Minimum Detectable Limit of SO₂ & Nox is 0.1 and 0.01 ppm respectively.

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on : 12/09/2019

NA= Not Applicable

ND=Not Detectable

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 109/05/2019-20

Date : 30/05/2019

STACK EMISSION MONITORING RESULTS Sinter Plant -2 (GPCB ID:29017)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_Part - 1/2/3/7

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	S - 1	S - 2	S - 5	S - 7	S - 9
01	Date of Sampling	---	09-05-2019	14-05-2019	10-05-2019	09-05-2019	14-05-2019
02	Time of sampling	Hr.	9.15	11.00	11.00	14.00	14.30
03	Stack Attached to	---	Secondary Mixer House	Fuel crushing de-duster system (Flux)	Primary Mixer De-duster system	Sinter Furnace	Discharging End of sinter de-dusting system
04	Air Pollution Control Measures	---	Dust Collector	Dust Collector	Dust Collector	ESP	ESP
05	Stack Height	Meter	30	30	20	50	50
06	Stack Diameter	Meter	0.7	0.7	0.7	2	1.3
07	Stack Temperature	°C	53	38	36	138	132
08	Ambient Temperature	°C	32	34	37	38	37
09	Average Velocity of Flue Gases	m/sec.	4.29	7.62	4.06	11.18	12.49
10	Isokinetic flow rate for P.M. Sampling	LPM	17	16	15	18	17
11	Gaseous Sampling Flow Rate	LPM	NA	NA	NA	2.0	NA
12	Permissible limits for PM	mg/Nm ³	150	150	150	150	150
13	Measured Concentration of PM	mg/Nm ³	15.0	21.0	23.0	28.0	34.0
14	Permissible limits for SO ₂	ppm	NA	NA	NA	100	NA
15	Measured Concentration of SO ₂	ppm	---	---	---	6.2	---
16	Permissible limits for NO _x	ppm	NA	NA	NA	50	NA
17	Measured Concentration of NO _x	ppm	---	---	---	20.2	---

Note : Minimum Detectable Limit of SO₂ & Nox is 0.1 and 0.01 ppm respectively.

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on : 12/09/2019

NA= Not Applicable

ND= Not Detectable

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Date : 30/05/2019

Ref. No. : 110/05/2019-20

STACK EMISSION MONITORING RESULTS BLAST FURNACE-1 (GPCB ID:18037)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_Part - 1/2/3/7

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	S - 1	S-2	S - 3	S - 4
01	Date of Sampling	---	11/05/2019	22/05/2019	16/05/2019	16/05/2019
02	Time of sampling	Hr.	9.30	12.30	10.30	12.00
03	Stack Attached to	---	Dedusting System	Stove Stack	Boiler - I	Boiler - II
04	Air Pollution Control Measures	---	Bag Filter	---	---	---
05	Stack Height	Meter	35.0	65.0	45	45
06	Stack Diameter	Meter	1.5	2.250	1.4	1.4
07	Stack Temperature	°C	34	174	154	158
08	Ambient Temperature	°C	32	32	37	38
09	Average Velocity of Flue Gases	m/sec.	11.54	8.21	8.54	7.89
10	Isokinetic flow rate for P.M. Sampling	LPM	21	24	22	23
11	Gaseous Sampling Flow Rate	LPM	2.0	NA	2.0	2.0
12	Permissible limits for PM	mg/Nm ³	150	150	150	150
13	Measured Concentration of PM.	mg/Nm ³	15.0	4.2	6.0	5.0
14	Permissible limits for SO ₂	ppm	100	100	100	100
15	Measured Concentration of SO ₂	ppm	ND	ND	6.4	6.4
16	Permissible limits for NO _x	ppm	50	50	50	50
17	Measured Concentration of NO _x	ppm	ND	ND	15.2	11.8
18	Permissible limits for CO vol/vol	%	N.A.	N.A.	1 % Max.	1 % Max.
19	Measured Concentration of CO vol/vol #	%	N.A.	N.A.	0.2	0.4

Note : Minimum Detectable Limit of SO₂ & Nox is 0.1 and 0.01 ppm respectively.

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on : 12/09/2019

Parameters are not covered in NABL Scope

N.D.=Not Detectable

N.A.=Not Applicable

Royal Environment Auditing & Consultancy Service



M. V. V.
Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 111/05/2019-20

Date : 30/05/2019

STACK EMISSION MONITORING RESULTS BLAST FURNACE - 2 (GPCB ID:29026)

Name of company : JINDAL SAW LIMITED,
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_Part - 1/2/3/7

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	S - 1	S - 3	S - 4	S - 5
01	Date of Sampling	---	11/05/2019	23/05/2019	15/05/2019	15/05/2019
02	Time of sampling	Hr.	10.15	12.30	11.15	10.00
03	Stack Attached to	---	Dedusting System	Stove Stack	Coke fine building dust collecting system	Iron Ore fine & Dust Collecting System
04	Air Pollution Control Measures	---	Bag Filter	---	Bag Filter	Bag Filter
05	Stack Height	Meter	40.0	65.0	30.0	30.0
06	Stack Diameter	Meter	1.5	2.250	0.45	0.35
07	Stack Temperature	°C	35	172	36	35
08	Ambient Temperature	°C	34	31	33	32
09	Average Velocity of Flue Gases	m/sec.	12.20	8.65	6.25	4.21
10	Isokinetic flow rate for P.M. Sampling	LPM	21	25	24	22
11	Gaseous Sampling Flow Rate	LPM	NA	NA	NA	NA
12	Permissible limits for PM	mg/Nm ³	150	150	150	150
13	Measured Concentration of PM.	mg/Nm ³	36.0	6.0	22.0	34.0
14	Permissible limits for SO ₂	mg/Nm ³	NA	100	NA	NA
15	Measured Concentration of SO ₂	mg/Nm ³	---	ND	---	---
16	Permissible limits for No _x	mg/Nm ³	NA	50	NA	NA
17	Measured Concentration of NO _x	mg/Nm ³	---	ND	---	---

Note : Minimum Detectable Limit of SO₂ & No_x is 0.1 and 0.01 ppm respectively.

NA=Not Applicable

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on : 12/09/2019

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 93/05/2019-20

Date : 30/05/2019

STACK EMISSION MONITORING RESULTS Pipe Plant (GPCB ID:18036)

Name of company : JINDAL SAW LIMITED,
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_Part - 1/2/3/7

Sr. No.	Particulars	Unit	S - 25	S - 26
01	Date of Sampling	---	27/05/2019	27/05/2019
02	Time of sampling	Hr.	11.00	12.00
03	Stack Attached to	---	Shot Blasting - I	Shot Blasting - II
04	Air Pollution Control Measures	---	Bag Filter	Bag Filter
05	Stack Height	Meter	10.0	10.0
06	Stack Diameter	Meter	0.41	0.41
07	Stack Temperature	°C	36	39
08	Ambient Temperature	°C	34	36
09	Average Velocity of Flue Gases	m/sec.	7.3	6.4
10	Isokinetic flow rate for P.M. Sampling	LPM	16	17
11	Gaseous Sampling Flow Rate	LPM	2.0	2.0
12	Permissible limits for PM	mg/Nm ³	150	150
13	Measured Concentration of PM	mg/Nm ³	21.6	18.7
14	Permissible limits for SO ₂	mg/Nm ³	40	40
15	Measured Concentration of SO ₂	mg/Nm ³	ND	ND
16	Permissible limits for NO _x	mg/Nm ³	25	25
17	Measured Concentration of NO _x	mg/Nm ³	ND	ND

Note : Minimum Detectable Limit of SO₂ & Nox is 0.1 and 0.01 ppm respectively.

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on : 12/09/2019

Royal Environment Auditing & Consultancy Service



Ravi
Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 112/05/2019-20

Date : 30/05/2019

STACK EMISSION MONITORING RESULTS Pipe Plant (GPCB ID:18036)

Name of company : JINDAL SAW LIMITED,
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_1/2/3/7

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	S - 8	S - 9	S - 15	S - 20
01	Date of Sampling	---	23/05/2019	21/05/2019	21/05/2019	22/05/2019
02	Time of sampling	Hr.	14.00	15.00	15.10	9.45
03	Stack Attached to	---	Common Stack Mg Converter I & II	Zn Coating - I	Zn Coating - II	Zn Coating - III
04	Air Pollution Control Measures	---	Bag Filter	Cyclone Seprater & Bag Filter	Cyclone Seprater & Bag Filter	Cyclone Separator & Bag Filter
05	Stack Height	Meter	30	30	30	30
06	Stack Diameter	Meter	0.5	0.6	0.6	0.6
07	Stack Temperature	°C	54	42	37	34
08	Ambient Temperature	°C	36	37	32	32
09	Average Velocity of Flue Gases	m/sec.	11.22	8.32	7.54	8.5
10	Isokinetic flow rate for P.M. Sampling	LPM	21	17	15	16
11	Gaseous Sampling Flow Rate	LPM	2.0	---	---	---
12	Permissible limits for PM	mg/Nm ³	150	20 (Zn)	20 (Zn)	20 (Zn)
13	Measured Concentration of PM	mg/Nm ³	44	16.5	14.2	11(Zn)
14	Permissible limits for SO ₂	mg/Nm ³	40	NA	NA	NA
15	Measured Concentration of SO ₂	mg/Nm ³	ND	---	---	---
16	Permissible limits for NO _x	mg/Nm ³	25	NA	NA	NA
17	Measured Concentration of NO _x	mg/Nm ³	6.4	---	---	---

Note : Minimum Detectable Limit of SO₂ & Nox is 0.1 and 0.01 ppm respectively.

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on : 12/09/2019

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 92/05/2019-20

Date : 30/05/2019

STACK EMISSION MONITORING RESULTS Pipe Plant (GPCB ID:18036)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_1/2/3/7

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	S - 1	S - 2	S - 3	S - 4
01	Date of Sampling	---	27/05/2019	27/05/2019	27/05/2019	27/05/2019
02	Time of sampling	Hr.	14.00	14.40	15.20	16.00
03	Stack Attached to	---	Core Shop-I	Core Shop-II	Core Shop-III	Core Shop-IV
04	Air Pollution Control Measures	---	---	---	---	---
05	Stack Height	Meter	30	30	30	30
06	Stack Diameter	Meter	0.584	0.58	0.584	0.584
07	Stack Temperature	°C	36	44	42	33
08	Ambient Temperature	°C	32	33	34	32
09	Average Velocity of Flue Gases	m/sec.	2.4	2.6	2.7	2.5
10	Isokinetic flow rate for P.M. Sampling	LPM	12	12	13	11
11	Gaseous Sampling Flow Rate	LPM	2.0	2.0	2.0	2.0
12	Permissible limits for PM	mg/Nm ³	150	150	150	150
13	Measured Concentration of PM	mg/Nm ³	10	12	11	12
14	Permissible limits for SO ₂	mg/Nm ³	40	40	40	40
15	Measured Concentration of SO ₂	mg/Nm ³	4.4	4.5	3.8	3.5
16	Permissible limits for NO _x	mg/Nm ³	25	25	25	25
17	Measured Concentration of NO _x	mg/Nm ³	7.8	6.5	5.4	6.8

Note : Minimum Detectable Limit of SO₂ & No_x is 0.1 and 0.01 ppm respectively.

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on : 12/09/2019

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 113/05/2019-20

Date : 30/05/2019

STACK EMISSION MONITORING RESULTS Pipe Plant (GPCB ID:18036)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_1/2/3/7

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	S - 13	S - 7	
01	Date of Sampling	---	28/05/2019	28/05/2019	27/05/2019
02	Time of sampling	Hr.	10.00	11.00	15.30
03	Stack Attached to	---	Annealing Furnace	Core Cleaning & Dusting - 1	Sand Reclamation
04	Air Pollution Control Measures	---	---	---	Bag Filter
05	Stack Height	Meter	32	20	30
06	Stack Diameter	Meter	1.375	0.9	0.9
07	Stack Temperature	°C	134	37	92
08	Ambient Temperature	°C	33	35	37
09	Average Velocity of Flue Gases	m/sec.	7.45	8.56	9.41
10	Isokinetic flow rate for P.M. Sampling	LPM	22	21	18
11	Gaseous Sampling Flow Rate	LPM	2.0	--	2.0
12	Permissible limits for PM	mg/Nm ³	150	150	150
13	Measured Concentration of PM	mg/Nm ³	6	21	29
14	Permissible limits for SO ₂	mg/Nm ³	100 (PPM)	N.A.	40
15	Measured Concentration of SO ₂	mg/Nm ³	2.6	--	1.4
16	Permissible limits for NO _x	mg/Nm ³	50 (PPM)	N.A.	25
17	Measured Concentration of NO _x	mg/Nm ³	10.5 (PPM)	--	17.4

Note : Minimum Detectable Limit of SO₂ & No_x is 0.1 and 0.01 ppm respectively.

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on : 12/09/2019

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 231 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 114/05/2019-20

Date : 30/05/2019

STACK EMISSION MONITORING RESULTS Pipe Plant (SDP-2) (GPCB ID:18036)

Name of company : JINDAL SAW LIMITED,
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 11255_1/2/3/7

NABL Certificate No. : TC 5948

Sr. No.	Particulars	Unit	S - 1	S - 2	S - 4	S - 5	S - 6	S - 8
01	Date of Sampling	---	03/05/2019	18/05/2019	18/05/2019	17/05/2019	17/05/2019	18/05/2019
02	Time of sampling	Hr.	10.00	9.30	15.30	11.30	14.30	16.30
03	Stack Attached to	---	Magnesium Treatment	Socket Cleaning	Annealing Furnace-II	Zinc Coating	Tri- Grinding Section	Zinc Coating Machine (FL-7)
04	Air Pollution Control Measures	---	Bag Filter	Bag Filter	---	Bag Filter	Bag Filter	Cyclone Separator & Bag Filter
05	Stack Height	Meter	30	30	45	30	30	30
06	Stack Diameter	Meter	1.00	0.50	0.85	1.00	1.00	1.20
07	Stack Temperature	°C	46	37	125	41	38	36
08	Ambient Temperature	°C	33	32	38	37	38	37
09	Average Velocity of Flue Gases	m/sec	8.10	6.45	8.12	7.21	5.65	9.21
10	Isokinetic flow rate for PM Sampling	LPM	16	24	25	15	18	15
11	Gaseous Sampling Flow Rate	LPM	---	---	2.0	---	---	---
12	Permissible limits for PM	mg/Nm ³	50	50	150	50 (Zn)	50	50 (Zn)
13	Measured Concentration of PM	mg/Nm ³	35.00	21.00	8.00	15.00	24.00	19.00
14	Permissible limits for SO ₂	PPM	NA	NA	100 (PPM)	NA	NA	NA
15	Measured Concentration of SO ₂	PPM	---	---	2.5	---	---	---
16	Permissible limits for NO _x	PPM	NA	NA	50 (PPM)	NA	NA	NA
17	Measured Concentration of NO _x	PPM	---	---	8.5 (PPM)	---	---	---

Note : Minimum Detectable Limit of SO₂ & Nox is 0.1 and 0.01 ppm respectively.

Instrument Used : Stack Monitoring Kit - Ecotech make - ESS 100

Calibration due on : 12/09/2019

ND= Not Detectable

N.A= Not Applicable

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 122/05/2019-20

Date : 30/05/2019

WORK ZONE NOISE LEVEL MEASUREMENT BLAST FURNACE- 1 (GPCB ID:18037)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Date of sampling : 17th May, 2019

Sr. No.	Location of Sampling	Value in dB(A)		
		Min.	Max.	Leq
01.	Stock House	62.5	75.2	69.2
02.	Inside BF Control Room	55.1	59.3	55.1
03.	Cast House	47.3	65.1	57.2
04.	Inside Laboratory	45.2	57.3	52.5
05.	Inside Control Room of Blower House	54.4	64.2	60.8
06.	Inside Control Room of CPP	49.1	57.7	54.4

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB,C-80 to 130 dB.

Recalibration is due on : 12/09/2019

Royal Environment Auditing & Consultancy Service



Kemi
Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 123/05/2019-20

Date : 30/05/2019

WORK ZONE NOISE LEVEL MEASUREMENT BLAST FURNACE - 2 (GPCB ID:29026)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Date of sampling : 18th May, 2019

Sr. No.	Location of Sampling	Value in dB(A)		
		Min.	Max.	Leq
01.	Inside BF Control Room	46.2	61.2	58.2
02.	Stock House	54.1	67.2	59.2
03.	Inside control room of blower house	46.1	60.2	53.1
04.	Cast House	46.1	60.2	54.2

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB,C-80 to 130 dB.

Recalibration is due on : 12/09/2019

Royal Environment Auditing & Consultancy Service



Royal
Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 121/05/2019-20

Date : 30/05/2019

WORK ZONE NOISE LEVEL MEASUREMENT SINTER PLANT- 1 (GPCB ID:35456)

Name of company : JINDAL SAW LIMITED,
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Date of sampling : 15th May, 2019

Sr. No.	Location of Sampling	Value in dB(A)		
		Min.	Max.	Leq
1	Inside Control Room	44.1	64.2	52.1
2	Near Flux Crushing Building	51.2	64.2	67.1
3	Sinter Machine area	41.2	62.1	54.2

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB, C-80 to 130 dB.

Recalibration is due on : 12/09/2019

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 124/05/2019-20

Date : 30/05/2019

WORK ZONE NOISE LEVEL MEASUREMENT SINTER PLANT - 2 (29017)

Name of company : JINDAL SAW LIMITED,
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Date of sampling : 15th May, 2019

Sr. No.	Location of Sampling	Value in dB(A)		
		Min.	Max.	Leq
01.	Inside Control Room	44.5	67.2	56.2
02.	Sinter Machine area	44.2	64.2	56.2
03.	Near Proportioning Building	53.1	68.2	63.4
04.	Near Crusher House	54.2	69.8	64.5

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB,C-80 to 130 dB.

Recalibration is due on : 12/09/2019

Royal Environment Auditing & Consultancy Service



hvi
Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 122/05/2019-20

Date : 30/05/2019

WORK ZONE NOISE LEVEL MEASUREMENT PIPE PLANT (GPCB ID:18036)

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Date of sampling: 17th May, 2019

Sr. No.	Location of Sampling	Value in dB(A)		
		Min.	Max.	Leq
01.	Inside Control Room of Annealing Furnace of DISP	43.3	55.1	51.8
02	Inside Control Room – Mill Area of Spiral Plant	52.3	65.5	61.7
03	Nr. Mig welding area of JCO Plant	44.3	58.5	53.5
01.	Nr. Induction furnace area of DISP Plant	51.8	65.5	64.3
06	Nr. Induction furnace area of SDP-2	57.2	77.5	68.2
07	Inside Control Room of Annealing Furnace of SDP-2	72.5	83.3	76.4
08	Control room of DISP HPTM	52.3	66.8	62.8
09	Zinc Coating of FL-7 control room	62.7	74.5	71.2
11	Control room of IFBE Coating Plant	56.8	77.5	68.3
12	Mould Shop control room	63.7	77.3	72.8

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB,C-80 to 130 dB.

Recalibration is due on : 12/09/2019

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 125/05/2019-20

Date : 30/05/2019

AMBIENT NOISE LEVEL MEASUREMENT

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Date of sampling : 21th May, 2019

Sr. No.	Location of Sampling	Value in dB(A) Day Time			Value in dB(A) Night Time		
		Min.	Max.	Leq	Min.	Max.	Leq
01.	Admin. Building	42.1	65.2	53.2	43.1	56.2	52.8
02.	OHC	44.2	56.1	53.4	44.8	57.3	53.2
03.	New Colony (School)	42.5	54.2	51.8	43.3	55.5	51.3
04.	Behind FL-7	52.7	68.1	56.4	53.4	64.4	55.2
05.	JCO Plant	53.5	65.1	61.3	48.3	67.3	58.3
06.	Nr. Sinter Plant-1 Canteen	54.4	77.3	64.5	53.2	70.2	63.4
07.	Blast Furnace RMHS	57.3	67.2	65.2	51.2	64.2	61.4
08.	Spiral-2-Behind work shop	54.4	65.4	64.3	48.3	64.4	57.2
09.	Chairman Bungalow	42.3	57.3	54.4	43.5	55.3	48.8
10.	301 Yard	55.1	68.2	63.2	53.2	65.3	64.3
11.	Guest House	46.3	65.1	57.8	46.1	62.5	48.2
12.	Harvesting pond	54.4	67.3	62.5	48.1	62.1	53.1

Instruments used : Sound level meter, Model : SL - 4030 (Lutron Make)

Range : A - 30 to 80 dB, B-50 to 100 dB, C-80 to 130 dB.

Recalibration is due on : 12/09/2019

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royalsenvironment@live.com admin@royalconsultancy.com

Ref. No. : 126/05/2019-20

Date : 30/05/2019

REPORT OF DOMESTIC WASTE WATER ANALYSIS

Name of company : JINDAL SAW LIMITED,
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Source of Sample Collection : Sewage Treatment Plant (Inlet & Outlet)

Date of Sampling : 28/05/2019

Test Method : As per IS Standards - 3025

NABL Certificate No. : TC 5948

Sr. No.	Parameters	Unit	GPCB limits for Treated Effluent	Raw Sewage	Treated Effluent
01.	pH	pH Unit	6.5 to 9.0	8.12	7.78
02.	BOD (3 Days at 27°C)	mg/l	30	132	14
03.	Total Dissolve Solid	mg/l	...	2045	1578
04.	COD	mg/l	...	185	15
05.	Total Suspended Solid	mg/l	100	136	5
06.	Oil & Grease	mg/l	...	ND	ND
07.	Fecal Coliform #	MPN/100ml	1000	NA	Absent
08.	Residual Chlorine #	mg/l	Min. 0.5	NA	0.55

Parameters are not covered in NABL Scope

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 127/05/2019-20

Date : 30/05/2019

WATER & WASTE WATER QUALITY ANALYSIS REPORT

Name of company : JINDAL SAW LIMITED,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

Source of Sample : Effluent Treatment Plant

Date of Sampling : 28/05/2019

NABL Certificate No. : TC 5948

Sr. No.	Parameters	Unit	Permissible limit	Results
01.	pH	...	6.5 to 8.5	7.15
02.	Colour	pt.co.units	100	12
03.	Temperature	°C	40	35
04.	Total suspended solids	mg/l	100	12
05.	Total dissolve solids	mg/l	2100	1525
06.	Phenolic compounds	mg/l	1	ND
07.	Oil & Grease	mg/l	10	ND
08.	Chlorides	mg/l	600	325
09.	Sulphate	mg/l	1000	265
10.	Ammonical nitrogen (as NH ₃ -N)	mg/l	50	5.4
11.	BOD (3 Days at 27°C)	mg/l	30	12.5
12.	COD	mg/l	100	45.5

Royal Environment Auditing & Consultancy Service



Analyst



Royal

Environment Auditing & Consultancy Service

303-304, Shivalik-7, B/s Bal Adalat, Gondal Road, RAJKOT - 360 002.

Ph. +91 281 2360695 Email : royaleenvironment@live.com admin@royalconsultancy.com

Ref. No. : 127/05/2019-20

Date : 30/05/2019

WATER & WASTE WATER QUALITY ANALYSIS REPORT

Name of company : JINDAL SAW LIMITED,
Village: Samaghogha,
Tal. : Mundra, Dist. Kutch

Source of Sample : SLAG GRANULATION POND (BLAST FURNACE)

Date of Sampling : 28/05/2019

NABL Certificate No. : TC 5948

Sr. No.	Parameters	Unit	Permissible limit	Results
01.	pH	...	6.5 to 8.5	8.12
02.	Colour	pt.co.units	100	41
03.	Tempreture	°C	40	31
04.	Total suspended solids	mg/l	100	6
05.	Total dissolve solids	mg/l	2100	1689
06.	Phenolic compounds	mg/l	1	ND
07.	Oil & Grease	mg/l	10	ND
08	Chlorides	mg/l	600	420
09	Sulphate	mg/l	1000	645
10	Ammonical nitrogen (as NH ₃ -N)	mg/l	50	1.32
11	BOD (3 Days at 27°C)	mg/l	30	15.9
12	COD	mg/l	100	59.2

Royal Environment Auditing & Consultancy Service



Analyst

Form No. 37

(Prescribed under Rule 12-B)

Register containing particulars of monitoring of working environment required under Section 7-A (a)(e).

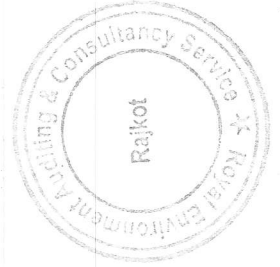
- 1 Name of the Department/Plant.: **Sinter Plant-1 at JINDAL SAW LIMITED, Samaghogha. (GPCB ID: 35456)**
- 2 Raw materials, by products and finished products involved in the process. **TOTAL DUST**
- 3 Particulars of sampling

Date of Sampling : 15th May, 2019

Sr.No.	Location Operation monitored	Identified Contaminate	Sampling Instrument used	Airborne Contamination			TWA Concentration (As given in Second Schedule)	Reference Method	Number of workers exposed at the location being monitored	Remark	Signature of person taking samples	Name (in block letters)
				Number of sample	Range	Average						
1	Sinter Plant-1 (Sinter Machine area)	Total Dust	Personal Respirable Dust sampler VPDS 203	02	1.0-2.2	1.6	10	Gravimetric	4	---	<i>[Signature]</i>	Mr. Ravi Vaghela

Instruments used : Vaibhav make personal sampler, Model No. VPDS 203

Calibration Due on. : 04/03/2020



For. Royal Environment Auditing & Consultancy Service

[Signature]
Authorized Sign


Form No. 37

(Prescribed under Rule 12-B)

Register containing particulars of monitoring of working environment required under Section 7-A (a)(e).

- 1 Name of the Department/Plant.: **Sinter Plant-2 at JINDAL SAW LIMITED, Samaghogha. (GPCB ID:29017)**
- 2 Raw materials, by products and finished products involved in the process. **TOTAL DUST**
- 3 Particulars of sampling

Date of Sampling : 29th May, 2019

Sr. No	Location Operation monitored	Identified Contaminate	Sampling Instrument used	Airborne Contamination			TWA concentration (As given in Second Schedule)	Reference Method	Number of workers exposed at the location being monitored	Remarks	Signature of person taking samples	Name (in block letters)
				Number of sample	Range	Average						
1	Sinter Plant-2 (Sinter Machine area)	Total Dust	Personal Respirable Dust sampler VPDS 203	02	1.2-1.5	1.35	10	Gravimetric	4	----		Mr. Ravi Vaghela

Instruments used : Vaibhav make personal sampler, Model No. VPDS 203

Calibration Due on. : 04/03/2020



For. Royal Environment Auditing & Consultancy Service



Authorized Sign

Form No. 37

(Prescribed under Rule 12-B)

Register containing particulars of monitoring of working environment required under Section 7-A (a)(e).

1 Name of the Department/Plant.: **BF Plant-2 at JINDAL SAW LIMITED, Samaghogha. (GPCB ID: 29026)**

2 Raw materials, by products and finished products involved in the process. **TOTAL DUST & CO.**

3 Particulars of sampling

Date of Sampling : 18th May, 2019

Sr. No	Location Operation monitored	Identified Contaminate	Sampling Instrument used	Airborne Contamination			TWA Concentration (As given in Second Schedule)	Reference Method	Number of workers exposed at the location being monitored	Remark	Signature of person taking samples	Name (in block letters)
				Number of sample	Range	Average						
1	BF Plant-2 (Cast House)	CO	Personal Respirable Dust sampler VPDS 203	02	2-5	4.5 (ppm)	50 (ppm)	Gravimetric	5	-----	<i>[Signature]</i>	Mr. Ravi Vaghela
		Total Dust			1.2-2.8	1.6	10					

Instruments used : Vaibhav make personal sampler, Model No. VPDS 203

Calibration Due on. : 04/03/2020

For. Royal Environment Auditing & Consultancy Service



[Signature]
Authorized Sign

Form No. 37 (Prescribed under Rule 12-B)

Register containing particulars of monitoring of working environment required under Section 7-A (a)(e).

1 Name of the Department/Plant.: DISP, JCO & Coating Units at JINDAL SAW LIMITED, Samaghogha.(GPCB ID: 18036)

2 Raw materials, by products and finished products involved in the process. TOTAL DUST

3 Particulars of sampling

Date of Sampling : 17th to 22th May, 2019

Sr. No	Location Operation monitored	Identified Contaminante	Sampling Instrument used	Airborne Contamination			TWA Concentration (As given in Second Schedule) mg/m ³	Reference Method	Number of workers exposed at the location being monitored	Remark	Signature of person taking samples	Name (in block letters)
				Number of sample	Range	Average						
1	Spiral Plant-2 (Nr. ID/OD)	Total Dust		02	1.2-2.0	1.60	10	Gravimetric	4	----		
2	Coating Plant-2 (Shot Blasting area)	Total Dust		02	1.4-2.0	1.70	10	Gravimetric	5	----		
3	DISP Plant (Induction Furnace area)	Total Dust	Personal Respirable Dust sampler VPDS 203	02	1.2-2.0	1.60	10	Gravimetric	4	----	<i>Ravi</i>	Mr. Ravi Vaghela
4	Coating Plant-1 (IFBE coating area)	Total Dust		02	1.4-3.7	2.7	10	Gravimetric	3	----		
5	SDP-2 (Induction Furnace area)	Total Dust		02	1.2-3.2	2.2	10	Gravimetric	6	----		

Instruments used : Vaibhav make personal sampler, Model No. VPDS 203

Calibration Due on. : 04/03/2020



For. Royal Environment Auditing & Consultancy Service

Ravi
Authorized Sign

Form No. 37

(Prescribed under Rule 12-B)

Register containing particulars of monitoring of working environment required under Section 7-A (a)(e).

1 Name of the Department/Plant.: **BF Plant-1 at JINDAL SAW LIMITED, Samaghogha. (GPCB ID: 18037)**2 Raw materials, by products and finished products involved in the process. **TOTAL DUST & CO.**

3 Particulars of sampling

Date of Sampling : 18th May, 2019

Sr. No	Location Operation monitored	Identified Contaminate	Sampling Instrument used	Airborne Contamination			TWA Concentration (As given in Second Schedule)	Reference Method	Number of workers exposed at the location being monitored	Remark	Signature of person taking samples	Name (in block letters)
				Number of sample	Range	Average						
1	BF Plant-1 (Cast House)	CO	Personal Respirable Dust sampler VPDS 203	02	5.0-7.0	6.0	50 (ppm)	Gravimetric	5	---	Ravi	Mr. Ravi Vaghela
		Total Dust			1.5-2.0	1.75	10					

Instruments used : Vaibhav make personal sampler, Model No. VPDS 203

Calibration Due on. : 04/03/2020

For. Royal Environment Auditing & Consultancy Service



Ravi Vaghela
Authorized Sign

Form No. 37 (Prescribed under Rule 12-B)


Register containing particulars of monitoring of working environment required under Section 7-A (a)(e).

1 Name of the Department/Plant.: DISP.,JCO & Coating Units at JINDAL SAW LIMITED, Samaghogha.(GPCB ID: 18036)

2 Raw materials, by products and finished products involved in the process. VOC

3 Particulars of sampling

Date of Sampling : 17th May, 2019

Sr. No	Location Operation monitored	Identified Contaminate	Sampling Instrument used	Airborne Contamination			TWA Concentration (As given in Second Schedule)	Reference Method	Number of workers exposed at the location being monitored	Remark	Signature of person taking samples	Name (in block letters)
				Number of sample	Range	Average						
1	Bitumen Coating Area (DISP)	VOC	Gas Analyzer	01	---	1.8	5	Gas Analyzer	4	---		Mr. Ravi Vaghela



For. Royal Environment Auditing & Consultancy Service


Authorized Sign

Form No. 37 (Prescribed under Rule 12-B)

Register containing particulars of monitoring of working environment required under Section 7-A (a)(e).

- 1 Name of the Department/Plant.: DISP.,JCO & Coating Units at JINDAL SAW LIMITED, Samaghogha.(GPCB ID: 18036)
- 2 Raw materials, by products and finished products involved in the process. VOC
- 3 Particulars of sampling

Date of Sampling : 17th May, 2019

Sr. No	Location Operation monitored	Identified Contaminate	Sampling Instrument used	Airborne Contamination			TWA Concentration (As given in Second Schedule)	Reference Method	Number of workers exposed at the location being monitored	Remark	Signature of person taking samples	Name (in block letters)
				Number of sample	Range	Average						
1	Epoxy Coating Area (Coating Plant)	VOC	Gas Analyzer	01	---	2.1	10	Gas Analyzer	4	---	<i>[Signature]</i>	Mr. Ravi Vaghela



For. Royal Environment Auditing & Consultancy Service

[Signature]
Authorized Sign