



# Royal

## Environment Auditing & Consultancy Service

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

Ph.: +91 281 2360695 ■ E-mail : royaleenvironment@live.com ■ admin@royalconsultancy.com

Ref. No. : 237/07/2012-13

Date : 01/08/2012

### STACK EMISSION MONITORING RESULTS

#### Sinter Plant- II

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

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

Sr. No.	Particulars	Unit	Stack No. 1	Stack No. 2	Stack No. 3	Stack No. 4	Stack No. 5	Stack No. 6
01	Date of Sampling	---	18-07-2012	18-07-2012	18-07-2012	NOT IN	18-07-2012	18-07-2012
02	Time of sampling	Hr.	9.30	10.45	11.45	OPERATION	13.00	15.00
03	Stack Attached to	---	Sinter Furnace	Tail End Stack	Flux	Primary Mixer De-duster system	Secondary Mixer De-duster system	Fuel Screening deduster System (Screening Flux Stack)
04	Air Pollution Control Measures	---	ESP	ESP	Bag Filter	---	---	Dust Collector
05	Stack Height	Meter	50	50	30	30	30	30
06	Stack Diameter	Meter	2	1.3	0.7	---	1.25	---
07	Stack Temperature	°C	157	123	41	---	62	41
08	Ambient Temperature	°C	32	33	35	---	35	36
09	Average Velocity of Flue Gases	M/Sec.	6.0	5.9	5.1	---	6.3	4.5
10	Isokinetic flow rate for P.M. Sampling	LPM	18	19	21	---	24	18
11	Gaseous Sampling Flow Rate	LPM	2.0	2.0	2.0	---	2.0	2.0
12	Permissible limits for PM	mg/Nm <sup>3</sup>	150	150	150	150	150	150
13	Measured Concentration of PM.	mg/Nm <sup>3</sup>	120	50	45	29	40	42
14	Permissible limits for SO <sub>2</sub>	ppm	100	NA	NA	NA	NA	NA
15	Measured Concentration of SO <sub>2</sub>	ppm	18.2	NA	NA	NA	NA	NA
16	Permissible limits for Nox	ppm	50	NA	NA	NA	NA	NA
17	Measured Concentration of Nox	ppm	25	NA	NA	NA	NA	NA

Note : Minimum Detectable Limit of SO<sub>2</sub> & Nox is 0.1 and 0.01 ppm respectively.  
Instrument Used : 2 Nos of Stack Monitoring Kit - Vayubodhan make - VSS I  
Both Stack kit Recalibration is Due on : 21/04/2013

NA= Not Applicable

  
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Ref. No. : 238/07/2012-13

Date : 01/08/2012

### STACK EMISSION MONITORING RESULTS

#### BLAST FURNCE-ID-18037

Name of company : Jindal Saw Limited,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

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

Sr. No	Particulars	Unit	Stack No. 1	Stack No. 2	Stack No. 3	Stack No. 4	PCI Unit
01	Date of Sampling	---	17-07-2012	17-07-2012	17-07-2012	17-07-2012	17-07-2012
02	Time of sampling	Hr.	10.15	11.30	12.45	16.00	9.15
03	Stack Attached to	---	Boiler - I	Boiler - II	Dedusting System	Stove Stack	Coal Pulverization
04	Air Pollution Control Measures	---	---	---	Bag Filter	-----	Bag Filter
05	Stack Height	Meter	45	45	35.0	50.0	32.00
06	Stack Diameter	Meter	1.380	1.380	1.484	2.250	---
07	Stack Temperature	°C	200	208	55	367	68
08	Ambient Temperature	°C	34	35	34	35	32
09	Average Velocity of Flue Gases	M/Sec.	8.9	9.0	8.3	10.5	7.6
10	Isokinetic flow rate for P.M. Sampling	LPM	24	24	32	21	28
11	Gaseous Sampling Flow Rate	LPM	2.0	2.0	2.0	2.0	2.0
12	Permissible limits for PM	mg/Nm <sup>3</sup>	150	150	150	150	150
13	Measured Concentration of PM.	mg/Nm <sup>3</sup>	NIL	NIL	52	36	75
14	Permissible limits for SO <sub>2</sub>	mg/Nm <sup>3</sup>	40	40	40	40	100 (PPM)
15	Measured Concentration of SO <sub>2</sub>	mg/Nm <sup>3</sup>	5.2	4	N.D.	N.D.	2.5 (PPM)
16	Permissible limits for Nox	mg/Nm <sup>3</sup>	25	25	25	25	50 (PPM)
17	Measured Concentration of Nox	mg/Nm <sup>3</sup>	6.0	7.3	5.0	4.0	0.93 (PPM)

Note : Minimum Detectable Limit of SO<sub>2</sub> & Nox is 0.1 and 0.01 ppm respectively.

Instrument Used : Stack Monitoring Kit - Vayubodhan make - VSS I

Both Stack kit Recalibration is Due on : 21/04/2013

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Ref. No. : 239/07/2012-13

Date : 01/08/2012

### STACK EMISSION MONITORING RESULTS PIPE PLANT-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

Sr. No	Particulars	Unit	Stack No. 1	Stack No. 2	Stack No. 3	Stack No. 4	Stack No. 5
01	Date of Sampling	---	20-07-2012	20-07-2012	20-07-2012	20-07-2012	20-07-2012
02	Time of sampling	Hr.	10.00	11.00	11.30	12.00	15.00
03	Stack Attached to	---	Mg Converter-I	Zn Coating - I	Zn Coating - II	Anneling Furnace - I	Anneling Furnace - II
04	Air Pollution Control Measures	---	Bag Filter	Cyclone Seprater & Bag Filter	Cyclone Seprater & Bag Filter	---	---
05	Stack Height	Meter	30	30	30	32	32
06	Stack Diameter	Meter	0.488	0.584	0.584	1.375	1.375
07	Stack Temperature	°C	59	46	50	179	119
08	Ambient Temperature	°C	32	34	34	35	36
09	Average Velocity of Flue Gases	M/Sec.	10.8	11.6	10.9	9.6	10.2
10	Isokinetic flow rate for P.M. Sampling	LPM	18	20	19	27	33
11	Gaseous Sampling Flow Rate	LPM	2.0	2.0	2.0	2.0	2.0
h	Permissible limits for PM	mg/Nm3	150	20 (Zn)	20 (Zn)	150	150
13	Measured Concentration of PM	mg/Nm3	53	18 (Zn)	16 (Zn)	42	50
14	Permissible limits for SO2	mg/Nm3	40	NA	NA	100 (PPM)	100 (PPM)
15	Measured Concentration of SO2	mg/Nm3	N.D.	NA	NA	3.1 (PPM)	2.9 (PPM)
16	Permissible limits for Nox	mg/Nm3	25	NA	NA	50 (PPM)	50 (PPM)
17	Measured Concentration of Nox	mg/Nm3	2.9	NA	NA	4.5 (PPM)	3.6 (PPM)

Note : Minimum Detectable Limit of SO2 & Nox is 0.1 and 0.01 ppm respectively.  
Instrument Used : 2 Nos of Stack Monitoring Kit - Vayubodhan make - VSS I  
Both Stack kit Recalibration is Due on : 21/04/2013

N.D= Not Detectable

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Ref. No. : 240/07/2012-13

Date : 01/08/2012

### STACK EMISSION MONITORING RESULTS Pipe Complex

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

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

Sr. No	Particulars	Unit	Stack No. 1	Stack No. 2	Stack No. 3	Stack No. 4	Stack No. 5
01	Date of Sampling	---	19-07-2012	NOT IN	19-07-2012	NOT IN	19-07-2012
02	Time of sampling	Hr.	10.00	OPERATION	11.00	OPERATION	15.00
03	Stack Attached to	---	Core Shop-II	Bitumin Drying Oven - I	Bitumin Drying Oven - II	Barrel Grinding - I	Barrel Grinding - II
04	Air Pollution Control Measures	---	---	---	---	Bag Filter	Bag Filter
05	Stack Height	Meter	30	32.8	32.8	30	30
06	Stack Diameter	Meter	0.584	1.375	1.375	0.584	0.584
07	Stack Temperature	°C	55	---	169	---	50
08	Ambient Temperature	°C	34	---	36	---	37
09	Average Velocity of Flue Gases	M/Sec.	20.0	---	9.0	---	17.1
10	Isokinetic flow rate for P.M. Sampling	LPM	14	---	27	---	12
11	Gaseous Sampling Flow Rate	LPM	2.0	---	2.0	---	2.0
12	Permissible limits for PM	mg/Nm3	150	150	150	150	150
13	Measured Concentration of PM.	mg/Nm3	33	---	122	---	51
14	Permissible limits for SO2	mg/Nm3	40	100 (PPM)	100 (PPM)	40	40
15	Measured Concentration of SO2	mg/Nm3	3.0	---	8.0 (PPM)	---	1.9
16	Permissible limits for Nox	mg/Nm3	25	50 (PPM)	50 (PPM)	25	25
17	Measured Concentration of Nox	mg/Nm3	5.0	---	9.0 (PPM)	---	4.0

Note : Minimum Detectable Limit of SO2 & Nox is 0.1 and 0.01 ppm respectively.  
Instrument Used : 2 Nos of Stack Monitoring Kit - Vayubodhan make - VSS I  
Both Stack kit Recalibration is Due on : 21/04/2013

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Ref. No. : 241/07/2012-13

Date : 01/08/2012

### STACK EMISSION MONITORING RESULTS Pipe Complex

Name of company : Jindal Saw Limited,

Village: Samaghogha,

Tal. : Mundra, Dist. Kutch

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

Sr. No.	Particulars	Unit	Stack No. 1	Stack No. 2	Stack No. 3	Stack No. 4
01	Date of Sampling	---	20-07-2012	20-07-2012	NOT IN	20-07-2012
02	Time of sampling	Hr.	16.00	16.15	OPERATION	17.30
03	Stack Attached to	---	Core Cleaning & Dusting	Core Shop-I	Shot Blasing (Coating Plant)	Sand Reclamation
04	Air Pollution Control Measures	---	Bag Filter	---	Cyclone Seprater & Bag Filter	Bag Filter
05	Stack Height	Meter	30	30	30	32
06	Stack Diameter	Meter	0.588	0.584	0.588	---
07	Stack Temperature	°C	45	39	---	50
08	Ambient Temperature	°C	35	35	---	31
09	Average Velocity of Flue Gases	M/Sec.	10.8	12.2	---	13.5
10	Isokinetic flow rate for P.M. Sampling	LPM	20	23	---	24
11	Gaseous Sampling Flow Rate	LPM	2.0	2.0	---	2.0
12	Permissible limits for PM	mg/Nm3	150	150	150	150
13	Measured Concentration of PM	mg/Nm3	44	40	---	41
14	Permissible limits for SO2	mg/Nm3	40	40	40	40
15	Measured Concentration of SO2	mg/Nm3	N.D.	N.D.	---	NIL
16	Permissible limits for Nox	mg/Nm3	25	25	25	25
17	Measured Concentration of Nox	mg/Nm3	N.D.	3.0	---	NIL

Note : Minimum Detectable Limit of SO2 & Nox is 0.1 and 0.01 ppm respectively.  
Instrument Used : 2 Nos of Stack Monitoring Kit - Vayubodhan make - VSS I  
Both Stack kit Recalibration is Due on : 21/04/2013

N.D= Not Detectable

  
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Ph.: +91 281 2360695 ■ E-mail : royaleenvironment@live.com ■ admin@royalconsultancy.com

Ref. No. : 242/07/2012-13

Date : 01/08/2012

### STACK EMISSION MONITORING RESULTS Pipe Complex- SDP

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

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

Sr. No.	Particulars	Unit	Stack No. 1	Stack No. 2	Stack No. 3
01	Date of Sampling	---	21-07-2012	21-07-2012	21-07-2012
02	Time of sampling	Hr.	17.00	18.00	13.00
03	Stack Attached to	---	Mg Converter -II	Zn Coating - III	Zn Coating - IV & V
04	Air Pollution Control Measures	---	Bag Filter	Cyclone Seprater & Bag Filter	Cyclone Seprater & Bag Filter
05	Stack Height	Meter	30	30	30
06	Stack Diameter	Meter	0.488	----	----
07	Stack Temperature	°C	43	47	51
08	Ambient Temperature	°C	35	34	31
09	Average Velocity of Flue Gases	M/Sec.	10.9	11.5	12.9
10	Isokinetic flow rate for P.M. Sampling	LPM	19	20	22
11	Gaseous Sampling Flow Rate	LPM	2.0	2.0	2.0
12	Permissible limits for PM	mg/Nm3	150	20 (Zn)	20 (Zn)
13	Measured Concentration of PM.	mg/Nm3	35	16 (Zn)	18 (Zn)
14	Permissible limits for SO2	mg/Nm3	40	NA	NA
15	Measured Concentration of SO2	mg/Nm3	N.D.	NA	NA
16	Permissible limits for Nox	mg/Nm3	25	NA	NA
17	Measured Concentration of Nox	mg/Nm3	3.0	NA	NA

Note : Minimum Detectable Limit of SO2 & Nox is 0.1 and 0.01 ppm respectively.  
Instrument Used : 2 Nos of Stack Monitoring Kit - Vayubodhan make - VSS I  
Both Stack kit Recalibration is Due on : 21/04/2013

N.D= Not Detectable

  
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Ref. No. : 243/07/2012-13

Date : 01/08/2012

### AMBIENT AIR QUALITY MONITORING REPORT

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Test Method : As per IS Standards - 5182\_2/4/6

Sr. No.	Particulars	Unit	AAQM - 1	AAQM - 2	AAQM - 3	AAQM - 4
01.	Location of Ambient	---	Nr. New Colony	Nr. Old Colony	Inside Plant Area	Nr. Temple
02.	Date of sampling	---	16/07/2012	16/07/2012	17/07/2012	17/07/2012
03.	Time of sampling	Hr.	8.00	9.00	8.30	9.30
04.	Duration of Sampling	Min.	1440.00	1440.00	1440.00	1440.00
05.	Dominant Wind Direction (From)	----	NW	NW	NW	NW
06.	Average Wind Speed	Km/Hr.	2 to 12	2 to 12	3 to 12	3 to 12
07.	Average flow rate during sampling	m <sup>3</sup> /Hr.	1.0	1.0	1.0	1.0
08.	Average flow rate for Gas sampling	LPM	2.0	2.0	2.0	2.0
09.	Permissible limits for PM 10	µg/m <sup>3</sup>	100	100	100	100
10.	Measured Concentration of PM 10	µg/m <sup>3</sup>	42	40	46	39
11.	Permissible limits for PM 2.5	µg/m <sup>3</sup>	60	60	60	60
12.	Measured Concentration of PM 2.5	µg/m <sup>3</sup>	29	31	25	27
13.	Permissible limits for SO <sub>x</sub>	µg/m <sup>3</sup>	80	80	80	80
14.	Measured Concentration of SO <sub>x</sub>	µg/m <sup>3</sup>	11	12.8	13.5	10.3
15.	Permissible limits for No <sub>x</sub>	µg/m <sup>3</sup>	80	80	80	80
16.	Measured Concentration of NO <sub>x</sub>	µg/m <sup>3</sup>	19.0	21.5	22.8	23.7
17.	Permissible limits for CO	µg/m <sup>3</sup>	2000	2000	2000	2000
18.	Measured Concentration of CO	µg/m <sup>3</sup>	N.D.	N.D.	N.D.	N.D.

Instrument used : 4 Nos of Envirotech make (RDS), and 2.5 Attachment Model No. APM - 460 BL, Gaseous Sampling Kit,  
All are Calibration due on 1.) 04/05/2013, 22/04/2013 & 10/12/2012

N.D= Not Detectable

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Shirpal

**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, BF, DISP, JCO & Coating Units at Jindal Saw Limited, Samaghogha.
- 2 Raw materials, by products and finished products involved in the process. TOTAL DUST
- 3 Particulars of sampling

Date of Sampling : 20/07/2012

Sr. No	Location Operation monitored	Identified Contaminate	Sampling Instrument used	Airborne Contamination			TWA concert ration (As given in Second Schedule)	Refrance Method	Number of workers exposed at the location being monitored	Remark	Signature person taking samples	Name (in block letters)
				Number of sample	Range	Average	mg/m3					
1	Spiral Plant Nr. ID/OD	Total Dust	Personal Respirable Dust sampler APM 800	02	1-5	2.5	10	Gravimetric	8	----	<i>Shivpal</i>	Mr. Shivpal Singh
2	JCO Plant Nr. JCO Press	Total Dust		02	1-3	1.5	10	Gravimetric	6	----		
3	Sinter Plant At First Floor	Total Dust		02	2.0-3.0	2.5	10	Gravimetric	2	----		
4	BF Plant (Cast House)	CO		02	0.3-0.7	0.5	2	Gravimetric	7	----		
		Total Dust			1-7	3.5	10					
5	Coating Plant (Blasting Area)	Total Dust		02	2-6	4.0	10	Gravimetric	5	----		
6	DISP Plant Main Entrance	Total Dust	02	3-9	6.0	10	Gravimetric	4	----			

Instruments used : Envirotech make personal sampler, Model No. APM 800

Calibration Date Due on : 10/12/2012



For. Royal Environment Auditing &amp; Consultancy Service

*Shivpal*  
Authorized Sign



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Ph.: +91 281 2360695 ■ E-mail : royalservice@live.com ■ admin@royalconsultancy.com

Ref. No. : 245/07/2012-13

Date : 01/08/2012

### WORK ZONE NOISE LEVEL MEASUREMENT

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Date of Sampling : 20/07/2012

Sr. No.	Location of Sampling	Results Avg. in dB(A)
01.	Inside Control Room of Sinter Plant	68.9
02.	Nr. Stock House of BF	71.0
03.	Inside Control Room of BF	69.2
04.	Inside Control Room of Blower House	75.1
05.	Inside Control of Cast House	70.3
06.	Inside Control Room of CPP	74.0
07.	Inside Control Room of Annealing Furnace of DISP	66.1
08.	Inside Laboratory of BF	72.0
09.	Inside Laboratory of DISP	70.3
10.	Inside ID & OD Control Room of JCO Plant	74.1
11.	Inside Control Room – Mill area of Spiral Plant	73.0
12.	Inside Spiral – 1	68.1
13.	Nr. Pipe cutting Area of Spiral Plant	69.0
14.	Inside JCO Plant	68.1
15.	Nr. JCO Press	72.0
16.	Inside DISP Plant	71.0
17.	Inside Coating Plant	68.5

Instruments used : Sound level meter, Model : SL - 4001 (Lutron Make)

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

Recalibration is Due On : 06/10/2012

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Ref. No. : 246/07/2012-13

Date : 01/08/2012

### AMBIENT NOISE LEVEL MEASUREMENT

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Date of Sampling: 21/07/2012

Sr. No.	Location of Sampling	Results in dB(A) (Day Time)	Results in dB(A) (Night Time)
	<b>Permissible Limits</b>	<b>75.0</b>	<b>70.0</b>
01.	Nr. Admin. Building	66.9	65.0
02.	Nr. Old Colony	67.4	65.1
03.	Nr. LPG Yard	65.0	64.0
04.	Nr. Sinter Plant	71.0	68.1
05.	Nr. R. O. Plant	68.7	69
06.	Nr. Gate No. 2	69.0	66.0
07.	Nr. New Colony	70.0	66.6

Instruments used : Sound level meter, Model : SL - 4001 (Lutron Make)

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

Recalibration is Due On : 06/10/2012

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Ref. No. : 247/07/2012-13

Date : 01/08/2012

### WATER SAMPLES ANALYSIS REPORT

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Date of Sample Collection : 21/07/2012


Source of Sample : Borewell Water Sample From Nr, Mess

Sr. No.	Parameters	Unit	Acceptable Limit(*)	Permissible Limits(*)	Results
01.	Colour	Pt.Co.Scale	5	15	Colourless
02.	Odour	--	Aggreable	Aggreable	Odourless
03.	pH	pH Unit	6.5 to 8.5	No Relaxation	7.45
04.	T.D.S.	Mg/L	500	2000	1320
05.	Total Hardness	Mg/L	200	600	538
06.	Turbidity	NTU	1	5	1.2
07.	Chloride	Mg/L	250	1000	540
08.	Alkalinity	Mg/L	200	600	318
09.	Phenolic Compound	Mg/L	0.001	0.002	NIL
10.	Residual Chlorine	Mg/L	0.2	1.0	NIL
11.	Fluoride	Mg/L	1.0	1.5	0.46
12.	Ca as Ca	Mg/L	75	200	237
13.	Mg as Mg	Mg/L	30	100	86
14.	Copper	Mg/L	0.05	1.5	NIL
15.	Iron	Mg/L	0.3	No Relaxation	0.05
16.	Manganese	Mg/L	0.1	0.3	0.07
17.	Sulphate	Mg/L	200	400	0.06
18.	Nitrate	Mg/L	45	No Relaxation	8

(\*) Acceptable Limit & Permissible Limits as per IS 10500 : 2012, Drinking Water Specification

  
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Ref. No. : 248/07/2012-13

Date : 01/08/2012

### REPORT OF EFFLUENT ANALYSIS

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Source Of Sample Collection : Domestic Effluent After Treatment

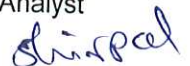
Date of Sample Collection : 21/07/2012

Sr. No.	Parameters	Unit	GPCB limits	STP Inlet	STP Outlet
01.	pH	pH Unit	-----	7.88	7.45
02.	BOD (3 Days at 27°C)	Mg/L	20	175	17
03.	Suspended Solids	Mg/L	30	88	14
04.	Residual Chlorine	Mg/L	Min. 0.5	----	0.61

  
Royal Environment Auditing & Consultancy Service



Analyst





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## Environment Auditing & Consultancy Service

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

Ph.: +91 281 2360695 ■ E-mail : royalservice@live.com ■ admin@royalconsultancy.com

Ref. No. : 249/07/2012-13

Date : 01/08/2012

### Bag Filter Efficiency Report

Name of company : Jindal Saw Limited,  
Village: Samaghogha,  
Tal. : Mundra, Dist. Kutch

Date of Sampling: 21/07/2012

Sr. No.	Particulars	Unit	Stack Attached to			
			Mg Converter-I	Zn Coating - I	Barrel Grinding - II	Zn Coating - II
1	Stack Height	Meter	30	30	30	30
2	Stack Diameter	Meter	0.488	0.584	0.584	0.584
3	Stack Temperature	°C	59	46	50	50
4	Ambient Temperature	°C	32	34	37	34
5	Average Velocity of Flue Gases	M/Sec.	10.8	11.6	17.1	10.9
6	Inlet	mg	1522	1770	1218	18021
7	outlet	mg	53	18	51	16
8	Efficiency	Percentage	96.5	99.0	95.8	99.9

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Analyst  
Shiv Patel